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ABSTRACT

This report reviews recent population and manpower projections and examines how they take into account certain unexpected shifts in demographic, social, and economic behavior. It also assesses how well the particular circumstances, trends, and problems of the nation's major minority groups have been brought into the purview of the projection process. The Bureau of Labor Statistics prepares its manpower projections by applying assumed future labor force participation rates to population projections. This author notes the fallibility of these statistics, mentioning the unpredictability of such relevant factors as epidemic diseases and immigration trends. Other areas related to the forming of manpower projections include national fertility, the fertility of ethnic minority groups, such as blacks and Mexican Americans, and demographic movement between urban and non-urban areas. The social and economic trends involved in these dynamics are complex and variable. The author of this report states that the entire effort of manpower projections is too narrowly conceived. This is evident, first, in the fact that most of the projection effort is concentrated toward producing a single best forecase rather than a number of alternative possibilities. Second, the narrowness of the approach is obvious in that there is no closely articulated continuing research effort. (Author/GC)

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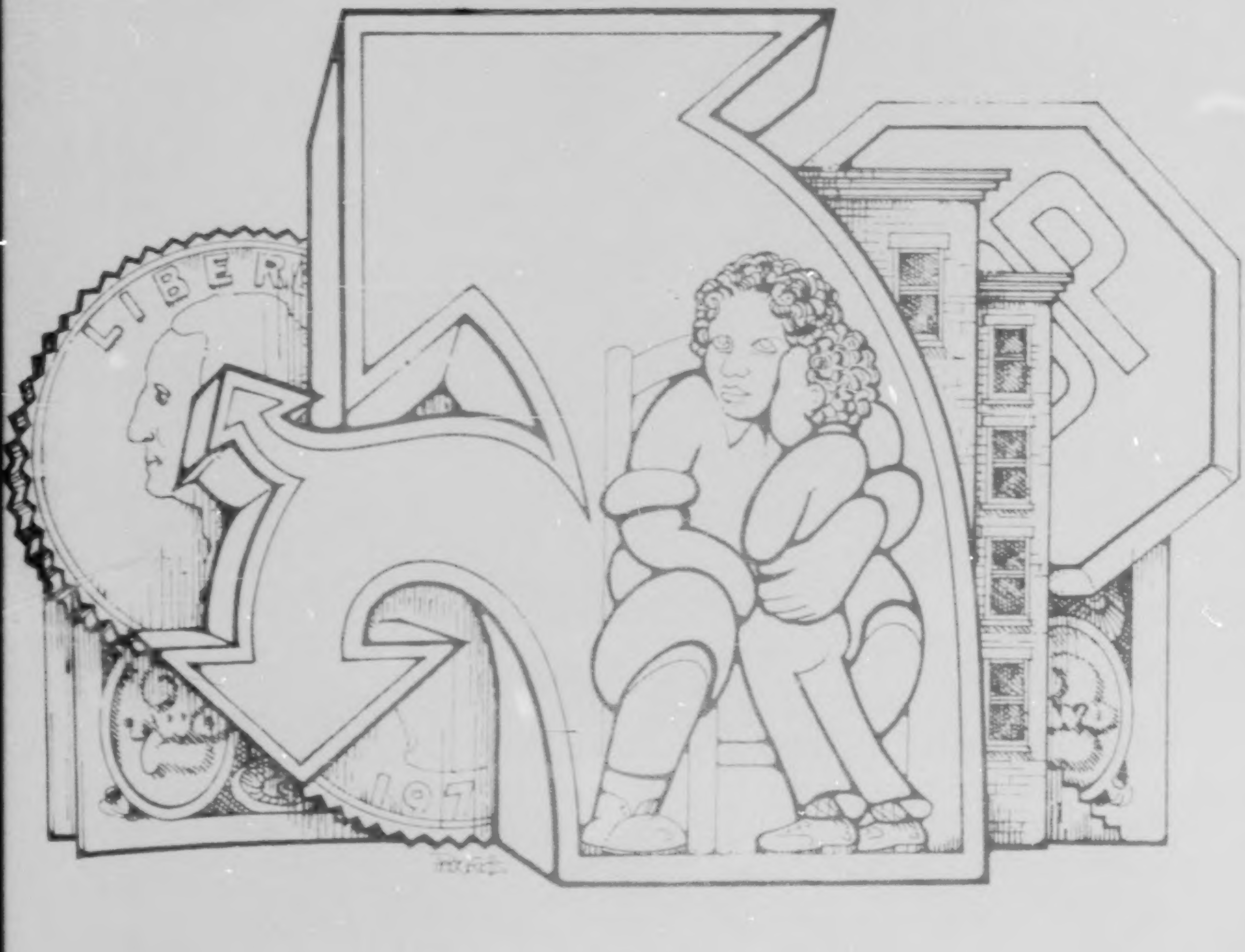

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DEMOGRAPHIC TRENDS AFFECTING THE FUTURE LABOR FORCE

Karl E. Taeuber

SR14

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DEMOGRAPHIC TRENDS AFFECTING THE FUTURE LABOR FORCE

Karl E. Taeuber

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DEMOGRAPHIC TRENDS AFFECTING THE FUTURE LABOR FORCE

Karl E. Taeuber*

A. Preview and Principal Conclusions

Manpower projections are informed guesses about the future. The typical basic projection is constructed by assuming that recent trends will continue into the future. If the projection reveals certain emerging problems, a policy process may be initiated. An effort will be made to alter one or more of the assumptions underlying the projection. If the policy intervention is successful, the original projection will not be realized. Deliberate "falsification" of projections is the very purpose of the enterprise. Projections are an early warning system that, by alerting us to dangers and consequnces, helps us foresee and, it is to be hoped, avoid or mitigate problems. Projections are a tool to assist policy makers to intervene in an effort to create a better future.

Innumerable governmental policies affect labor force behavior, and these policies form only part of the complex mixture of social and economic forces that influence manpower. Not all of these forces are known and understood, most are subject to rapid and often surprising change, and few can be projected with confidence into the future. No single manpower projection can serve the need for continuing assessment of whither we are headed. No single manpower projection can serve the need for careful assessment of the likely impact of the many alternative policies that might be adopted.

The policy analyst has an interest not only in a basic "continuation of current trends" projection, but in various special-purpose projections. To the policy analyst, a projection is not an unconditional forecast of what will happen, but an indicator of what may happen given certain conditions or assumptions. Projections may be designed to indicate the likely consequences of various contemplated actions, such as a revision in the Social Security retirement age. Projections may be designed to indicate the likely consequences of various possible future events or changes in trend, such as a marked increase in the birthrate. The policy analyst needs an array of alternative projections.

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The need of the policy analyst for multiple alternative projections conflicts with the need of the policy analyst, the government generally, and the public for a single best forecast of the future. The public enchantment with forecasts often partakes of a magical entertainment, as in predictions of new technology (a helicopter in every garage), and many round numbers assume a life of their own, whatever the character of the projection that spewed them forth (300 million Americans by the year 2000; 100 million in the labor force by 1980). Sophisticated policy analysts and social scientists are not immune to the lure of taking projections as gospel. The most famous demographic case in point is the baby boom of 1946-66 that disrupted political planning for a declining population. A new twist is the persistent concern with rapid U.S. population growth in the face of a birthrate that has dropped to subreplacement levels below those observed in the 1930s.

Beyond the intrinsic fascination of bold forecasts, there is genuine need for a generally shared basic population and manpower projection. The government cannot afford to have each agency and program utilize its own multiple sets of alternative projections. If the various components of economic policy are to be consistent, those agencies that make aggregate economic forecasts should all share certain common assumptions about population and labor force. Projections of new housing starts (based in part on projections of new household formation) should be consistent with projections of family formation, marriage rates, fertility, educational needs, the demand for day-care facilities, and the number of women who will be seeking work. Certain shared assumptions are essential if the varied community planners are to function with a minimal degree of harmony.

The need for a consistent set of projections of future population and manpower has not led to an appropriately high degree of consistency in the reproductive and work behavior of Americans. Every few years since World War II, the Bureau of the Census has made a new set of projections of birthrates, and every time they have done so, the actual birthrates in the next few years have risen far above or have fallen far below the assumptions. Labor force behavior, particularly the continuing rise in female labor force participation, has similarly failed to conform to projections even for three or four years into the future. Such unpredictability in human behavior calls into question the validity of any single projection, but paradoxically renders it all the more necessary to try to anticipate the future. Recent experience tells us to expect major change. To assume that the future will repeat the recent past is often the most fallible projection of all.

No matter how quixotic the quest, the search for better projections must be made. This report was commissioned as a review, first, of recent population and manpower projections; second, of how well they take into account certain unexpected shifts in demographic, social, and economic behavior; and third, of how well the particular circumstances, trends, and problems of the nation's major minority groups have been brought into the purview of the projection process.

This report was not designed to be a review of the organization or management of manpower programs, nor of the Bureau of Labor Statistics (BLS), which is responsible for manpower projections. But in the course of reviewing current manpower projections, it became apparent that making projections is a sporadic activity receiving only limited support within the federal government. This is not a criticism of the quality or performance of the BLS staff responsible for the projections. The statistical design of the official projections is sophisticated, and the published projections, past and current, are professionally and competently executed. The problem is not a lack of expertise, but a paucity of time, resources, and personnel devoted to the task. In more fundamental terms, the entire effort of manpower projections is much too narrowly conceived.

The narrowness of the effort is apparent in two fundamental aspects. First, most of the effort is expended on the production of a single best forecast. To the chagrin of forecasters and other seers and to the delight of the human spirit, the future cannot be foretold. In the literature on organizational management and program administration, older and simpler models of rational forecasting and intervention have given way to more complex models of contingency planning for multiple alternative futures. No single manpower projection, no matter how careful and sophisticated, can lay claim to much confidence that it portrays the future path. Policies need to be adjusted to changing circumstances, and so do projections. The activity of projection should be continuous and it should be focused on the delineation of multiple alternatives. The alternatives should represent varying perspectives on what is likely to happen and on what may happen as the result of various deliberate policy interventions.

The narrowness of the current national manpower projection effort is apparent in a second fundamental aspect. There is no closely articulated continuing research effort. The execution of a single manpower projection requires making a large number of assumptions about demographic trends—fertility, mortality, migration—and about labor force behavior. Each of these trends and behaviors is, in turn, dependent upon other assumptions. Trends in the labor force behavior of young women, for example, depend upon assumptions about birthrates, college attendance, marriage age, reproductive behavior outside of marriage, wage rates for those who do obtain jobs, and so forth. Demographic and manpower trends are intertwined with more general social and economic trends. The manpower projector cannot solve all the problems of social science in unraveling this complex web, but should have the auxiliary research resouces to trace out the most important strands, to identify what is known and what is not known about the consistency among assumptions, and to ascertain the principal indirect effects of each assumed trend or condition.

These general conclusions about the projection process emerged from the various specific tasks undertaken for this report. More specific conclusions about demographic trends, manpower trends, and projections are contained in the separate sections. Some of these conclusions are summarized here as a preview of the report.

The manpower projections prepared by the Bureau of Labor Statistics are derived by applying assumed future labor force participation rates to population projections. The character of the population projections issued by the Bureau of the Census is reviewed in section B. The fallability of the official population projections, mentioned above, is noted in more detail. Most demographers acknowledge the fact that we have not done very well at predicting fertility trends, but accept the Census Bureau's view that we do not need to pay much attention to the other components of demographic change, mortality and immigration.

There is reason to question whether the trend of mortality will continue to be a smooth, slow, downward trend. The conquest of cancer, toward which the nation invests many billions of dollars annually, would have an impact (surprisingly small) on life expectancy and also (surprisingly large) on the character and burden of other illnesses and health care, on disability and retirement programs, and on other aspects of social policy. The occurrence of a new influenza epidemic or mysterious "Legionnaire" disease could also wreak havoc with projections of smooth mortality trends. In demographic projections as in manpower projections, nearly all the effort has been devoted to development of a single best projection. Alternatives are of so little interest that the imagination is reined in and the possibility of planning or preparing for the unusual is given short shrift.

The same failure to accept our inability to foresee the future is apparent with respect to immigration. With the recent drop in fertility, net immigration has come to represent a substantial portion of total national population growth. To assume that net immigration will continue indefinitely at 400,000 per year may be the best single guess, but it flies in the face of our knowlege of the 1975 influx of Vietnamese refugees and the likelihood of further changes in immigration laws and trends. Immigrants, whether from Vietnam, Cuba, Hungary, Jamaica, or the Philippines, pose special issues for manpower policy, and by concentrating on the best single projection of the future, attention is directed away from the fact that special issues are a recurring event.

The migration of persons across the border between the United States and Mexico has been of enormous concern to agricultural and urban manpower policy for generations. The sad fact about recent movement across this border is that no one knows its magnitude. Many knowledgeable persons believe that there are several million illegal aliens living and working in the United States. Neither the Census Bureau projections nor the derivative manpower projections take this into account. The effect on national aggregate data is sizable. The effect on projections of the Mexican-American minority is to render the projections exceedingly unrealiable.

Guessing the future course of fertility forms the subject of section C. The trend in the birthrate is the principal reason that the United States work force has a very peculiar age structure. The large numbers of persons born during the baby boom are now teenagers and young adults, placing demands on the economy for very large numbers of entry-level jobs. Twenty years from now, the bulge will be in the prime working ages, and in another 20 years the economy may be faced with shrinking numbers of workers simultaneously with rapid expansion in pensioners. Future trends in fertility will determine whether the aggregate work force expands or contracts, and whether there will again be sharp irregularities in age structure causing shifting burdens on employment policy.

Alternative projections have been likened to a horse race, and the selection of a best forecast to picking the winner (Johnston, 1973). The Census Bureau's latest population projection features three mounts. Replacement level fertility (2.1 children per woman) is clearly their favorite. A modest baby boom (2.7 children per woman) is the pick of those who see pronatalism as built into American values, the tax structure, and a return of prosperity. The third horse, sustained subreplacement fertility (1.7 children per woman), is a virtual unknown in world history, yet this handicapper sees a number of reasons to make this the potential winner. If a late entry could be accepted in the sweepstakes, a cross between 2.1 and 1.7 would get this reviewer's nod.

The choice of a favorite in the fertility sweepstakes is closely related to the choice of a favorite in the related event, the female labor force participation futurity. Further increments in the share of single women and of mothers who seek employment are more compatible with low fertility than with sharply increased childbearing.

In section D. attention is turned away from the national sweepstakes to a series of separate events of special importance in some regions and localities. The future fertility of blacks and of Mexican-Americans is reviewed in the context of racial and ethnic trends in family life, social status, and economic circumstances. Among black Americans, a low fertility regime has been established. The raging debate in the social sciences over the history, strengths, weaknesses, and future of the black family cannot be resolved by a demographic perspective. But the evidence of successful rational family planning among young black women suggests enormous change in the last decade. A lessening of the heavy burdens of child care on black families, whether or not the father lives in the household, may be expected in the future. This may facilitate the maintenance of a high labor force participation by black women, reduce the dependency on welfare and public assistance, and improve the ability of the family to provide for its members and to invest in its children's future. A demographic perspective clearly indicates that black families display a remarkable resilience in the effort to cope with unfavorable circumstances. The biggest question marks for the future of black family and employment patterns seem to be economic, not demographic.

Mexican-Americans participated in the rapid adoption of new methods of contraception and in the sharp fertility declines characteristic of other groups in the last decade, but continue to have higher fertility than either Anglos or blacks. Unfortunately, neither our birth registration system nor our elaborate system of national population surveys produces continuing current information on Mexican-Americans in sufficient depth and detail for an analysis of trends in family and fertility. Such indicators as are available are rendered of less utility by the question of uncounted immigration. The data suffice to show that fertility among Mexican-Americans may be characterized as high only in contrast to the remarkably low fertility of Anglos. Mexican-Americans share in the general American pattern of a nuclear small family system. To formulate sensible projections of the future of family patterns and fertility for this group would require not only a better data base but also a research program.

A set of population projections is translated into a set of manpower projections by applying a set of projected labor force participation rates. Some of the issues involved in projecting participation rates are reviewed in section E. Although important questions may be raised about the BLS projections of participation rates for men, the social and economic trends that affect labor force entry and retirement are not closely linked to the kinds of demographic trends reviewed in this report. For women, participation in the labor force is common but far from universal at all adult ages below 65, and the projection of future trends is linked to assumptions about family and fertility trends. The technique used by BLS to extrapolate past trends produces estimates of future female labor force participation that are not unreasonable for the next decade or so, but that are not well-grounded in a base of previous research about the character and determinants of those trends. The Census Bureau's fertility projections are designed within the "cohort analysis" framework that dominates research on fertility, and this facilitates assessment of the projections, as well as the preparation of modifications or alternatives. A cohort analysis framework should also be applied to the female labor force projections. To do so would require undertaking some background research, for social scientists have not developed the cohort perspective on labor force participation to the degree that they have on fertility.

A similar problem pertains to the labor force projections by race. The technique used by BLS to split total projections into black and white projections is statistically sophisticated, and the short-run projections are probably useful extrapolations. But the technique does not permit any linking of the projected trend to existing or potential research on past trends and determinants. Thus, the projections are essentially impossible to evaluate from demographic, sociological, or economic perspectives.

No effort has been made to project labor force trends for Mexican-Americans or other small minority groups, despite the policy focus on the particular circumstances confronting such groups and the special programs designed to aid them. No projection effort would be worthwhile unless accompanied by substantial investment in new data collection and research.

The distribution of residences and of employment among cities, suburbs, and nonmetropolitan territory forms the subject of section F. No specific projections are offered or reviewed, but three general topics are discussed as background to a projection of future manpower distribution and associated policy issues.

All large-scale migration trends eventually come to an end. Trends in suburbanization, particularly since 1970, are examined to ascertain whether this mass migration has largely run its course. The answer is NO. Central city population loss has spread from the largest cities to the next largest, and a general slowdown in metropolitan growth has not altered the net flow from cities to suburbs. The growth of workplaces in the suburbs continues. Suburban growth outpaces city growth even for such functions as have been thought to be particularly suited to central business districts: finance, business and professional services, and public administration. The black population, largely excluded from the new suburbia of the 20th century, has recently shown a rapid upturn in suburbanization. This process bears close watching to see if there is any lessening of the highly segregated racial residential patterns up to now prevailing in suburbs as well as central cities, and to ascertain if the nation's large central cities are beginning to experience a "black flight" or comparable character to the better known "white flight." All of these indicators suggest that the momentum of suburban growth may yet be increasing. The urban and metropolitan crises will remain in the forefront of domestic policy issues for the foreseeable future.

Has the decentralization of employment opportunities had adverse effects on the economic well-being of central city workers, particularly the minority poor whose residential choice has been so tightly constrained? A review of evidence on the job/residence mismatch is supportive of the need for manpower policy analysts to consider these issues. Black men who live and work in the suburbs or who commute from city to suburbs have higher earnings than those who live and work in central cities. Central city residence seems to hamper earnings. Black women and youth are probably more severely handicapped by the job/residence mismatch, for long-distance commuting especially impedes the flow of information about vacancies and limits the chances of obtaining and holding part-time or low-wage employment. Monitoring of trends in migration of persons and of jobs thus becomes essential to the formulation of civil rights aspects of manpower policy, whether that policy takes the form of targeting firms for equal employment compliance review, of lending Department of Labor support to residential desegregation efforts, of strengthening employment services, or of other actions.

The final part of section F reports on the recent subsidence of metropolitan growth and the nonmetropolitan turnaround. The centuries-long net migration from countryside to metropolis appears finally to have run its course. A review of the post-1970 evidence for this fundamental change in population redistribution patterns leads into brief comment on the need for attention to the shifting geographic locus of population and employment. Former policies--area redevelopment, growth centers, and so forth—cannot suffice in the face of rapid demographic and economic change.

In section C, the various comments from preceding sections on the uses and limits of existing projections are brought together and a perspective is developed on how the projection process should be organized. If projections are to have serious value in policy analysis, formulation, implementation, and evaluation, a serious fiscal and managerial commitment is essential. An apolitical technical office must be given continuing responsibility for preparing multiple alternative projections. The office must include scholars with diverse backgrounds in the social sciences as well as technical training in demographic and econometric methods. The organizational structure must provide opportunity for the projectors to assume an active role in policy analysis, and for policy analysis to assume a dynamic role in policy formulation and evaluation.

Projection is a method of great value to basic and applied research. If its full value is to be realized, added resources and proper organization are necessary but insufficient. To technique and scholarship must be joined vision and imagination.

B. A Perspective on Population and Manpower Projections

Demographers are the high priests of social forecasting, for what is so unchanging as the succession of the generations? Has not death itself by statistical legerdemain been rendered into such a regular and predictable event that the multi-billion-dollar life insurance industry can bet against death and win as regularly as the casinos in Las Vegas? Can we now, then, read the demographic future, with confidence? Alas, who knows better than demographers themselves the fallibility of seers? Was any profession ever more confident of its forecasts than demographers in the 1930s and 1940s were that the U.S. population was nearing its peak—about 150 million—and would soon embark upon a prolonged period of decline?

In the policy sciences as in the political arts generally, past failures carry less weight than future promises. The formulation of policy is imbued with hope, and in this era of rationalism one hope is that scientific forecasting and planning can make the exercise of choice more effective.

Projections of the future labor force are essential to the formulation of manpower policy. Labor force projections are based very intimately on population projections. The population projection debacle caused by the baby boom three decades ago led not to the abandonment of efforts to forecast but to the development of new techniques and new language. The new techniques--particularly cohort analysis—are indeed powerful and helpful, but the new language--"projections" and "scenarios" rather than "forecasts" and "predictions"--is often simply cosmetic. Population forecasts, no matter how prettily bedecked and smartly done, remain fallen idols.

Some years ago, when the Bureau of the Census got into the business of preparing population projections on a regular basis, it devised the now-standard practice of preparing alternate projections, based on clearly specified assumptions about the future behavior of the components of population change (fertility, mortality, and migration). It soon became apparent that when the Census Bureau published three projections, high, medium, and low, nearly everyone immediately adopted the medium series, and it thereby attained more "official" status than the Bureau intended. The introductory paragraphs in subsequent Census Bureau revisions of its projections were rewritten to emphasize the necessity for the user to make a choice among alternate series, based on the purposes to which the projection was to be put and on an independent assessment of the reasonableness of the specific assumptions. To emphasize the point, the Bureau began to publish four alternate projections, so that the simple recourse of adopting the middle one was no longer available.

In its latest set of population projections the Bureau of the Census (1975:1; all subsequent citations are to this report except as noted) has returned to the practice of providing three main alternates:

> The change to three ... assumptions does not reflect the view that future population can now be determined more accurately than previously, but rather that the presentation of three series, along with guidelines for the selection of a series or a projected range, better serves the needs of users.

It is easy to understand the pressures to provide an "official" best projection, bounded by "unlikely" higher and lower alternates. (The words "official" and "unlikely" are disclaimed by the Bureau in fine print, but reflect, I believe, the perceptions of most of the Bureau's customers. Indeed, deep in the methodological text of the 1975 projections, page 21, the middle projection is described as "appearing at this time to be a resonable choice.") Were the Bureau to take the strategy of alternate assumptions even more seriously, it would find itself and its customers inundated with projections. If only three assumptions were made about future fertility, three about future mortality, and three about future net immigration, a set of 27 projections would result. I believe the major planning agencies could be well served by such inundation, even though the general consumer of Census reports might find it a waste.

We are in an era in which widespread computer technology and statistical knowledge have made the technique of alternate projections commonplace. We have already experienced several decades of widespread use of projections, and we know that the "best" or "most likely" projection chosen at a given time has often turned out only five, ten, or 20 years later to have been more in error than were alternate projections earlier perceived as "extreme" or "unlikely."

I detect a general unwillingness to live in this new era. We can easily project a wide array of futures, and past experience has shown our inability to pick the "correct" alternate from the array. Yet we persist with the effort, in the apparent faith that a single best projection can meet our needs. Denis Johnson (1973:6) recently set forth six purposes of projections, and other purposes can be envisaged. Might not distinct purposes require distinct projections? Shouldn't we accept the fact that many futures are plausible and that we cannot by statistical expertise or social science scholarship choose the one that will happen? One governmental implication of the eternal predicament (that the future is unknown) is that we should plan for more than one future. Formulating, revising, interpreting, and acting upon projections should be a major enterprise in each governmental agency. If we can't win by placing our entire bet on our best guess, shouldn't we consider the utility of other betting strategies?

One betting strategy that fits neatly with our ability to devise alternate projections is to envisage the extremes and plan to avoid the losses of being caught unaware. I do not believe the three alternates provided by the Census Bureau suffice for such a strategy. The cases of mortality and net immigration provide topical examples of the difficulty. The way the Bureau of the Census has arranged to get by with only three alternate projections has been to make a single assumption for mortality (slight reduction) and a single assumption for net immigration (continuance at recent levels and patterns). The alternate futures thus depend entirely on three alternate assumptions about fertility.

The mortality assumptions are certainly reasonable (pp. 16,25):

> The use of only one set of mortality projections reflects the relatively small and/or predictable changes that have occurred in mortality rates during the past decade .... Projections are based on the general assumption that there will be no large-scale war, widespread epidemic, or other major catastrophe.

Unfortunately there is no guarantee that the future course of mortality will be smoothly reasonable. Some years ago when there was a national furor over the wisdom of "thinking about the unthinkable," a demographic monograph was commissioned on the consequences of nuclear war (Heer, 1965). The threat of nuclear devastation is not so remote today that we should dismiss it even from our footnotes and appendices. Civil defense has become a taboo topic, but surely manpower planning must take cognizance of certain unlikely but possible events that would require quick and massive alterations in policy and program. No population or manpower projection based on any specific catastrophic scenario has a perceptible likelihood of realization, but the likelihood of some such catastrophe is sufficiently above zero that we should maintain a capacity for rapid response.

I have used an extreme example to emphasize a simple point, that the future is unknown and that we need multiple plans. Let me turn to more topical and hence more plausible problems with the Census mortality assumptions. One of the most popular spending programs in the nation is the search for "breakthroughs" in the control of major chronic diseases. Infant mortality rates, which had remained steady for many years, have dropped about one-third in the last few years. We hope, work for, and surely expect similar sharp changes in trend to occur at other life-cycle stages.

It is common demographic wisdom that complete elimination of any single cause of death would have only a modest impact on the average expectation of life. Nevertheless, as the Bureau of the Census (p. 25) itself has noted:

> A breakthrough in the control of major chronic diseases could lead to substantial reductions in mortality rates at the older ages. If this were to occur, the future population of the United States could be somewhat larger and could have a significantly older age structure than shown in the projection series in this report.

The consequences for Social Security and pension funds could be great. A sharp decline in the incidence of one major disease would have an impact on the incidence of mortality and disability from other illnesses and ailments. The direct and indirect consequences of increased survivorship, decreased marital disruption through widowhood, improved health, and so forth, are clearly worth specific investigation in economic and manpower forecasts.

The Census projections assume regularity in mortality trends from the acute diseases, but irregularity seems at least as plausible. In the year of the great swine flu inoculation program and the mysterious Pennsylvania Legionnaire toxin, it has become thinkable that the nation might experience an epidemic that would significantly raise mortality rates. The manpower effects might be primarily those of short-run adjustments to lost work-days, but it would be helpful to know what magnitude of epidemic-induced mortality or long-run disability would be necessary to have significant consequences for general labor force projections.

The assumption of constant net immigration is a reasonable means for simplifying the basic set of U.S. population projections, but again it seems necessary that a serious manpower forecasting effort consider certain alternatives. The Bureau of the Census (1975:27) notes that a change of plus or minus 25 percent in the future level of annual net immigration would have a relatively small effect on future population. In response to current political pressures to cut immigration sharply, either for purposes of attaining zero population growth or to reduce labor supply and unemployment, the Bureau of the Census (p. 31) did prepare a supplementary projection assuming no net immigration. Note that this immigration assumption does have a discernible effect on the population projections.

In the last two decades there have been fluctuations in immigration in response to special programs to accept certain refugees—Hungarians, Cubans, Vietnamese. The volume and composition of immigration also changed in response to changes in the basic laws governing immigration. There is always pressure for change in immigration laws, and there are always millions of refugees who might immigrate to the United States if permitted. Thus the constancy of the 400,000 figure is quite unlikely. Anticipation of the manpower consequences of special immigration programs and of major changes in the law should be undertaken. In the Census Series III population projection (fertility below replacement), net immigration of 400,000 per year will exceed natural increase after 1977.

Many immigrants but no newborn enter the labor force immediately. Clearly labor force projections are affected by plausible alternative immigration assumptions. The number of surviving immigrants plus their surviving descendants can grow quite large, and for a given volume of immigration the numerical projection is quite sensitive to the age and sex composition of the immigrants and to the fertility rates of the group. Thus there is the need to consider various possibilities: the immigration of older refugees has far different implications than the immigration of young adults just entering the fertile ages.

The greatest problem with the immigration assumption is concealed in two seemingly minor sentences in the Census Bureau's description of procedures (pp. 26-27):

> This figure [400,000] is close to the current annual level of alien immigration into the United States and to the average

> annual net civilian immigration into the United States during the past decade. Because of the lack of reliable information, recent estimates of net immigration (and by extension, the projected level of net immigration) do not include an allowance either for aliens entering the United States illegally or for all emigrants leaving the United States.

The estimated net immigration, a relatively constant 400,000 annually, is calculated from records of legal immigration, which is controlled by specific laws, a visa system, an elaborate enforcement machinery, and from admittedly imperfect estimates of emigration from the United States. Thus we are left in the dark if we want to know how good is the estimate of 400,000 net legal immigration. History tells us that emigration of recent immigrants has often been substantial, and varies from year to year. Can we be assured that the imperfections in estimating emigration are of little statistical consequence?

An accurate net count of immigration is important for projecting aggregate numbers in the population. But one aspect of manpower planning is assessment of the volume of new entrants into the labor force. Because the United States does not have good records of emigration, it does not have good records of the volume of gross flow accompanying the estimated net influx of 400,000 immigrants. The projection methodology assigns an age-sex-race composition to these net immigrants, but the text fails to point out that a "net immigrant" is a statistical concept, not an identifiable person. An inflow of one million accompanied by an outflow of 600,000 has different manpower consequences than an inflow of one-half million accompanied by an outflow of 100,000.

Omission from the nation's statistical system of soundly based estimates of illegal immigration and emigration compounds the problem. The principal function of the Immigration and Naturalization Service is policing rather than statistical. A recent New York Times story (July 25, 1976) reports:

> 40,000 to 60,000 a week are believed by the immigration authorities to make it safely across the border to swell the officially estimated eight million illegal Mexican aliens already in this country.

If the estimate of perhaps 50,000 additional immigrants a week can be taken to represent a net immigration figure, the implied annual total of 2.6 million dwarfs the 400,000 figure used in the Census projections. If net illegal immigration is only one-half or even one-tenth as large as the cited figure, the Census population projections and the correlated manpower projections are badly flawed.

The uncertainty imposed upon national figures by illegal immigration is far greater when certain population subgroups are considered. One of my tasks in this review of manpower projections is to consider blacks and Mexican-origin populations as well as the national (predominantly white Anglo) aggregate. According to the Current Population Survey of March, 1975 (U.S. Bureau of the Census 1975), there were 6,690,000 persons in the United States of Spanish origin. It is presumed that most of the persons responding to Census surveys are citizens or legal aliens. The estimate of 8 million illegal resident aliens from Mexico is mind-boggling. The utility of our entire official statistical system for identifying and characterizing Mexican-Americans and others of Spanish origin is called into question. I shall be compelled to return to this topic at each point in subsequent pages where this minority group is considered.

In these introductory remarks I have given one demographer's perspective that population projections will necessarily prove to be wrong. I have refused to accept as plausible the Census Bureau's simplifying assumptions that future levels of mortality and net immigration can be projected into the future with little worry about the degree of error. I have suggested that there is great need to worry about the degree of error, that both mortality and immigration can fluctuate sharply up or down. My purpose is not to discredit the Census population projections or the related BLS manpower projections. Rather it is by possibly outlandish examples to compel attention to the inherent limitations of projections and to their specific utility. Projections are a tool to be used in management and planning. Management and planning must be flexible, cognizant that the future may surprise and shock us. It is chimerical to seek the best or the most likely or the most plausible or the least unreasonable projection. (My perspective differs only in emphasis from that expressed by the Census Bureau in the section "Selection of Projection Series," accompanying the 1975 projections [p. 14].)

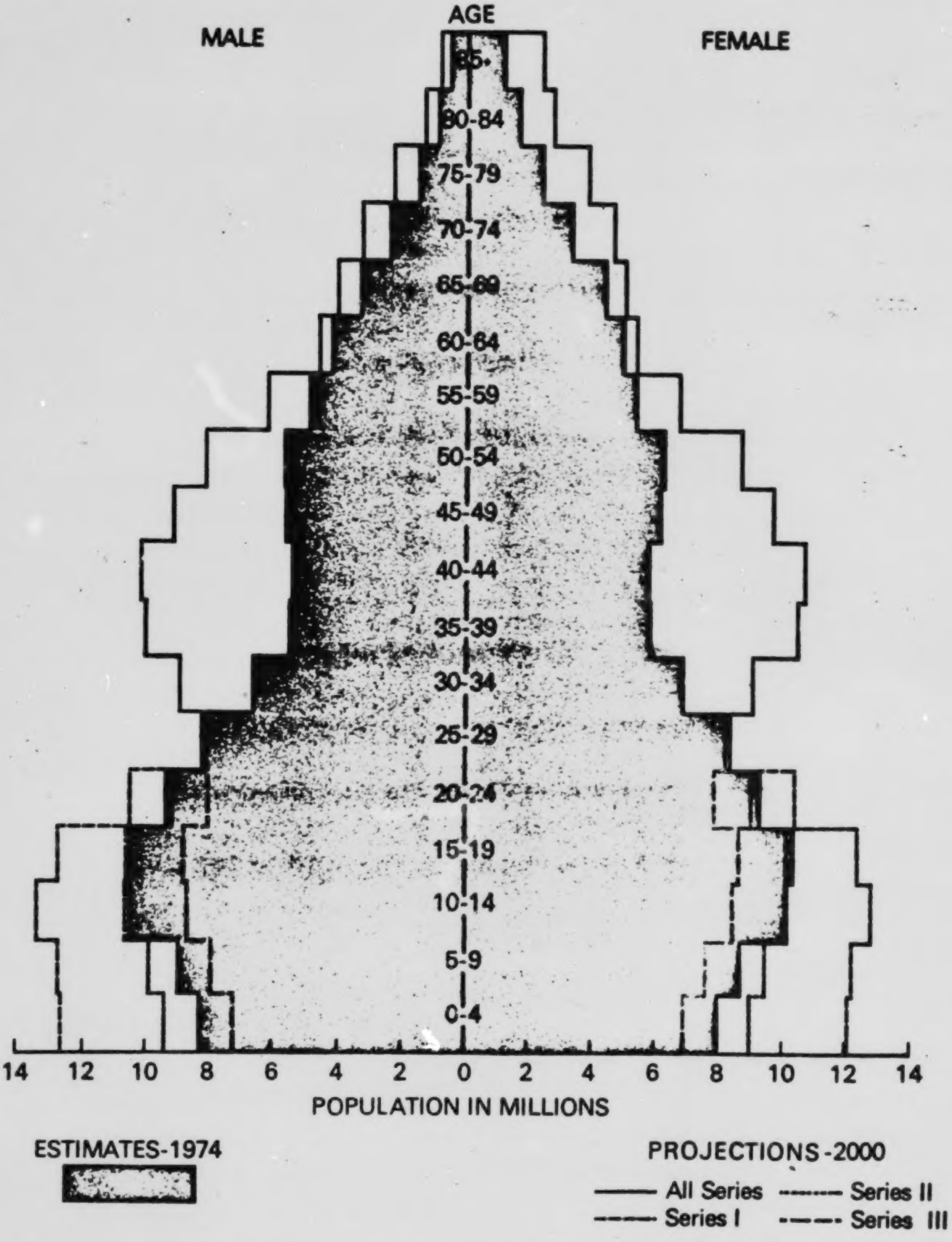
I do not at all deny the utility of projecting, nor even the need to assess the likelihood that the assumptions underlying a specific projection will be approximately realized. Indeed my task in succeeding sections is, in part, to express opinions on the likely demographic future. I simply wish to emphasize in this introduction that the a priori judgment of likelihood will never approach certainty. The method of alternate projections is an enormously valuable technique if used for envisaging rather than for denying the implications of that uncertainty.

C. Guessing the Future Course of Fertility

Mortality rates and immigration rates are potentially subject to large variations that could affect demographic structure and the labor force, but for half a century there have been few changes with surprising or lasting impact (although the changing volume and national origins of immigrants have greatly affected certain U.S. subpopulations). Fertility rates are also potentially subject to large variations, and in the past half-century gyrating birthrates have created an enormous irregularity in demographic structure and in the flow of persons through the labor force ages. The annual number of births increased from about 2.3 million in 1933 to 2.7 million in 1941, 2.9 million in 1945, 3.4 million in 1946, and more than 4 million in each year from 1954 through 1964. Following the baby boom came the baby bust; the number of births declined to 3.1 million in 1975.

When the demographic structure of the U.S. population is portrayed in the usual age-sex pyramid (Figure 1), the persons born during the baby boom years are represented by a tremendous bulge. This bulge moves up in age as time passes. For example, in the year 1985 there are expected to be far more persons aged 20 to 29 than aged 10 to 19 or 30-39. The process of moving this baby-boom bulge through the age pyramid, year by year, has been most dramatically characterized by the image of a python swallowing a pig by peristalsis. Assuming no surprises in future mortality or immigration, the projection of this highly irregular age structure year by year into the future poses no methodological problems. All three series in the 1975 projections portray this in identical fashion. Because the three series differ only in their fertility assumptions, they treat the population already born identically. Persons already born, when subjected to the slow force of mortality and the annual increment of 400,000 net immigration,

Figure 1. Estimates and Projections of the Population of the United States, by Age and Sex: 1974 and 2000



SOURCE: U.S. Bureau of the Census, 1975b, Figure 3.

produce the population aged 10 and above in 1985, 20 and above in 1995, 25 and above in the year 2000, and so on. Only for long-run projections does the size of the adult population depend on the fertility assumptions, and it is only the projected number of young adults that is at issue until well beyond the year 2000.

The principal method for preparing labor force projections is to begin with the Census population projections for a given year and apply labor force participation ratios of each age-sex group. For a given series of future participation ratios, the size of the future labor force depends on the size of the adult population. The direct effect of future fertility on future labor force has a lag of 16 years, as projected numbers of babies survive to reach the earliest age for labor force entry. At first glance it seems that the choice of an assumption about future fertility could not have much effect on labor force projections until the 1990s, and then the effect would be only on the volume of new entrants in the younger ages.

The catch is that one's choice of labor force participation ratios may be affected by one's choice of fertility assumptions. This is most obvious for participation ratios for women in the childbearing and child-rearing ages. Actual participation ratios for women show great sensitivity to child-care responsibilities as indicated by family size and numbers of young children. A complex model of future labor force participation ratios might also show ratios for males and for older women depending to some degree on birthrates, dependency ratios, family composition, and the size of cohorts entering labor force ages. Thus do assumptions about future fertility affect short-run as well as long-run projections of labor force participation ratios. The fact that fertility assumptions do not have any numerical effect on adult population until the 1990s does not relieve the projector of labor force in the 1980s from the need to guess about fertility trends.

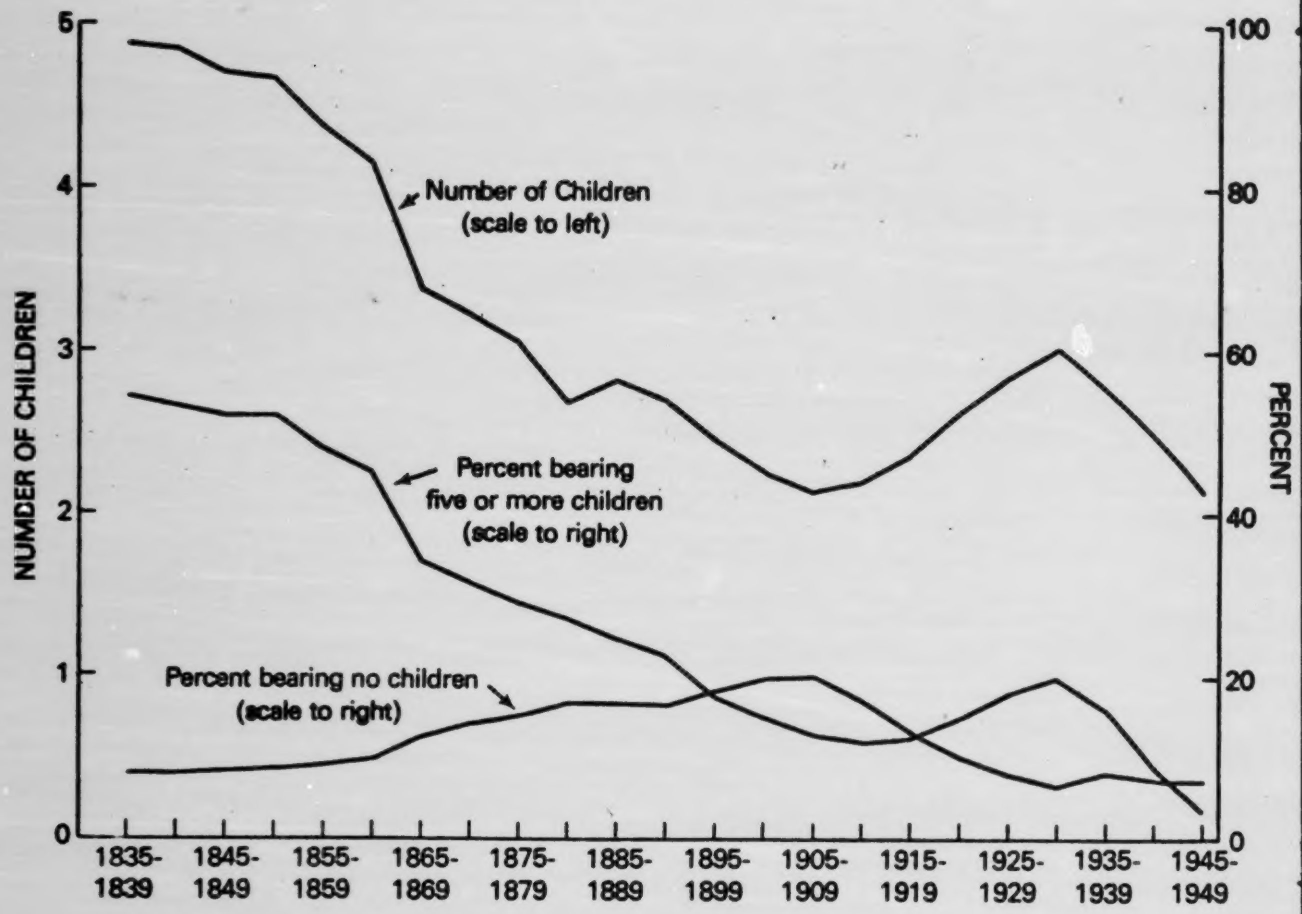
From a historical perspective, both the 2-child and the 3-child family represent low fertility. In the early 19th century, average completed fertility was about 5 children, and the long relatively steady decline portrayed in Figure 2 displays a bump representing the baby boom. That little bump has proved the bane of U.S. population forecasting. The report on the 1975 projections includes a brief section entitled "Previous National Population Projections" (pp. 16, 19) that is worth careful perusal. Twelve separate projections, made 1947 through 1975, are summarized in a table.

> These projections illustrate the extent and frequency with which past projections of population and actual population trends have differed....The pronounced and extended increase in fertility following the Second World War (i.e., the baby boom) was not anticipated by demographers....In projections prepared during the 1950s, assumptions about future fertility were raised as it became apparent that the baby boom was not a short-term phenomenon. Projections of the 1960 population prepared during the 1950s were typically below the actual figure. The opposite situation occurred during the 1960s. The pronounced decline in fertility was not anticipated and projections of the 1970 and 1975 population prepared during the 1960s were all above the actual figures. [Emphasis added.]

Note that projections published in 1949 understated the 1950 census count, projections published in 1958 understated the 1960 census count, and projections published in 1967 overstated the 1970 census count.

Trends in the completed family size of successive birth cohorts of women have been fairly regular. Trends in the number of births each year have displayed wider fluctuation. In the late 1940s demographers realized that the number of first births was extraordinarily high in part because women in their late twenties were "making up" for births postponed because of depression and war, and women in their teens were displaying a new early childbearing pattern. Demographers were, in a sense, too sophisticated to suspect that this surge in first births would be followed by a surge in second, third, and fourth births, and by reductions in the proportions of women who never married or remained childless. When the number of births began to stabilize and then to drop, demographers again were sophisticated. They knew that

Figure 2. Fertility Measures for Birth Cohorts of White Women



NOTE: Data for the last three cohorts are estimates based on additional births expected according to a national sample survey.

SOURCE: Taeuber and Sweet, 1976: Figure 6.

if the ages at marriage and at childbearing rose, there could be fewer births for a few years, but the number of births would again increase as postponed fertility was made up. Demographers also knew that by the mid-1970s the front wave of the baby boom would be filling the early reproductive ages and the ranks of potential mothers would rapidly increase. Demographers did not know or foresee that fertility rates would drop 50 percent in less than a decade and would plunge below the lowest levels of the Depression years.

To try to disentangle the confusion between changes in the timing of fertility among women who are going to have some given ultimate number of children, and changes in timing that accompany a change in the ultimate number, demographers have begun to rely on asking women how many children they expect to have. These data, to the extent that women themselves can anticipate their own future, are helpful. But there is no analytic or survey technique that can fully disentangle current evidence or changes in timing and quantity of fertility.

The problem of the projector is complicated by the fact that childbearing is concentrated among women in their twenties. The women who will be bearing children in the 1980s are mainly teenagers today. Although some analysts believe that attitudinal surveys of teenagers can alert us to future change, all agree that a 15-year-old's statement about her ultimate number of children has less predictive value than does a similar statement by a 30-year-old.

The footnotes in the report of the 1975 projections cite literature detailing these perspectives and recent efforts through more careful and detailed analysis of census data, vital statistics data, survey data, and state and local data on abortion to assess the nature of the recent fertility decline and whether it is temporary, has run its course or will continue.

The Census Bureau sees plausibility in all three perspectives. The decline may have run its course, and, allowing for a very modest rebound (making up postponed fertility), future fertility may be projected at about replacement level, 2.1 children per woman completing childbearing. This is the middle (Series II) projection in the 1975 series.

The decline may be a temporary reaction to the Vietnamese War, a sluggish economy, and a faddish infatuation with propaganda about ecological crisis and the morality of the small family. Underlying familistic values and family structure may reassert themselves and 3- and 4-child families could again be commonplace. The Census Bureau does not think it likely that average family size will revert to its baby boom peak of 3.2 children per woman, but they find it within the realm of reasonable possibility that completed family size will drop only to about 2.2 before rising steadily to a level of 2.7. This yields the high (Series I) projection in the 1975 series. (In the Bureau's 1958 projections, the lowest series utilized a completed family size of 2.64 children and the highest 4.04.)

For the lowest "reasonable" projection in the 1975 series, it is assumed that the fertility patterns of 1975 represent a shift in quantity as well as timing of fertility, that fertility has declined well below the replacement level and will be sustained at a level of 1.7 children per woman completing childbearing. This rate of childbearing is well below the nation's previous low (for women born in 1910, who bore their children during the Depression years and completed childbearing with an average of 2.3 children apiece).

The two extreme series do not encompass the full range of childbearing rates for which plausible arguments could be made, yet the demographic consequences of the spread between 1.7 and 2.7 children are enormous. (The Commission on Population Growth gave great emphasis to the analogous difference between the 2-child and the 3-child family.) In the Series III projection the total population of the United States reaches 250 million in the year 2010, remains at about this figure for

15 years (peaking just below 252 million), and then embarks on a continuous decline. By contrast the Series I projection entails steady growth, to 250 million by 1988 and past 500 million in the year 2050.

The range between 1.7 and 2.7 children per woman also encompasses a very wide range of consequences for family composition, child-care responsibilities, and plausible projections of female labor force participation rates. If it is essential for an agency such as BLS to concentrate attention on one "best" projection of future population and labor force, then it makes a lot of difference whether the Census Series II projection is taken as the base, or the Census Series I or III is used, or whether all are discarded in favor of some alternative. Because the range between Series III and Series I is so wide, an attempt to use these as extreme points for placing "confidence limits" on projected numbers is doomed to flounder on the sheer magnitude of the differences.

A straightforward application of the Census projections yields a best guess that the population of the United States in the year 2000 will be about 262 million and will lie somewhere between 245 and 287 million. An estimate with a range of -6 percent on the down side and +10 percent on the up side may be sufficiently narrow for certain general planning purposes. But the size of the total population is not a very useful piece of information with respect to most policy analysis. Manpower programs are typically focused on, say, the teenage labor force, the prime age labor force, or the older labor force. For some of these components, the range of estimates derived from the three Census Series is enormous.

Consider the population aged 15 to 19, the group that produces high school graduates, college entrants, and many new labor force entrants. The year 2000 estimates are 25, 21, and 17 million from the three series. For program planning, is a range of plus or minus 19 percent, or 4 million persons, sufficiently narrow? If not, and we want to rely heavily on a single projection, which one should we choose?

My guess is that the fertility trend will lie below the Series II level for some years to come, but that it will remain above the Series III level. Fluctuations on the low side of this forecast seem as plausible as fluctuations on the high side. Hence for a single basic projection I would choose a path between Series II and III. For simplicity, I will specify that the path runs right down the middle of these Series, at an ultimate mean completed childbearing of 1.9 children per woman. To make such a choice is foolhardy, but the game of projecting rests on making assumptions and I shall indicate the rationale for this choice.

Demographers in the 1930s displayed a faith that the demographic transition observed in the economically developed countries from high fertility and mortality to low fertility and mortality was leading to a prolonged phase of incipient decline. The baby boom has made that faith seem quaint, especially to American demographers. But many developed nations did not experience the pronounced baby boom we did, and many have sustained replacement or subreplacement level fertility for decades. In historical terms I view the baby boom as the anomaly (that is, required special explanation) rather than viewing the fertility through the 1930s as the anomaly.

That current fertility is below Depression levels and that it may stay low seems likely for several reasons. The U.S. population has attained an extraordinary degree of easy, conscious control over reproduction. The contraceptive technology available and widely used is very convenient and very reliable. Successful birth control has been practiced by many populations lacking the pill, the IUD, medical sterilization, and safe abortion, and even by societies lacking precision-made condoms and diaphragms. But when a population lacks reliable mechanical or chemical contraceptives, it controls fertility through control of the frequency or character (for example, coitus interruptus) of sexual intercourse. The situation in the United States today is quite different.

As a means of controlling access to sexual intercourse, the institution of marriage has become in our society a very imperfect birth control technique. There is considerable reproduction before marriage and between marriages. Our age at marriage, while not as low as ever, is till far lower than that observed in many other low-fertility societies. Control over access to sexual intercourse, either outside or within marriage, is not something the United States is very good at.

During the baby boom and until the last few years, cohabiting couples in the United States were often unsuccessful at controlling fertility. Many couples had trouble making disciplined use of techniques such as rhythm or withdrawal; many had trouble with the mechanical methods; and many tried methods of dubious utility. Fertility surveys reveal that very few couples got through their childbearing with completely planned timing and quantity of fertility. The majority had at least one accident of timing, and about one-third admit having at least one more child than planned. Of course there was a social and economic climate in which such accidents were not greatly regretted. Many couples then, as in the Depression years, were quite successful at avoiding children for the 15 to 20 reproductive years that remained after early childbearing.

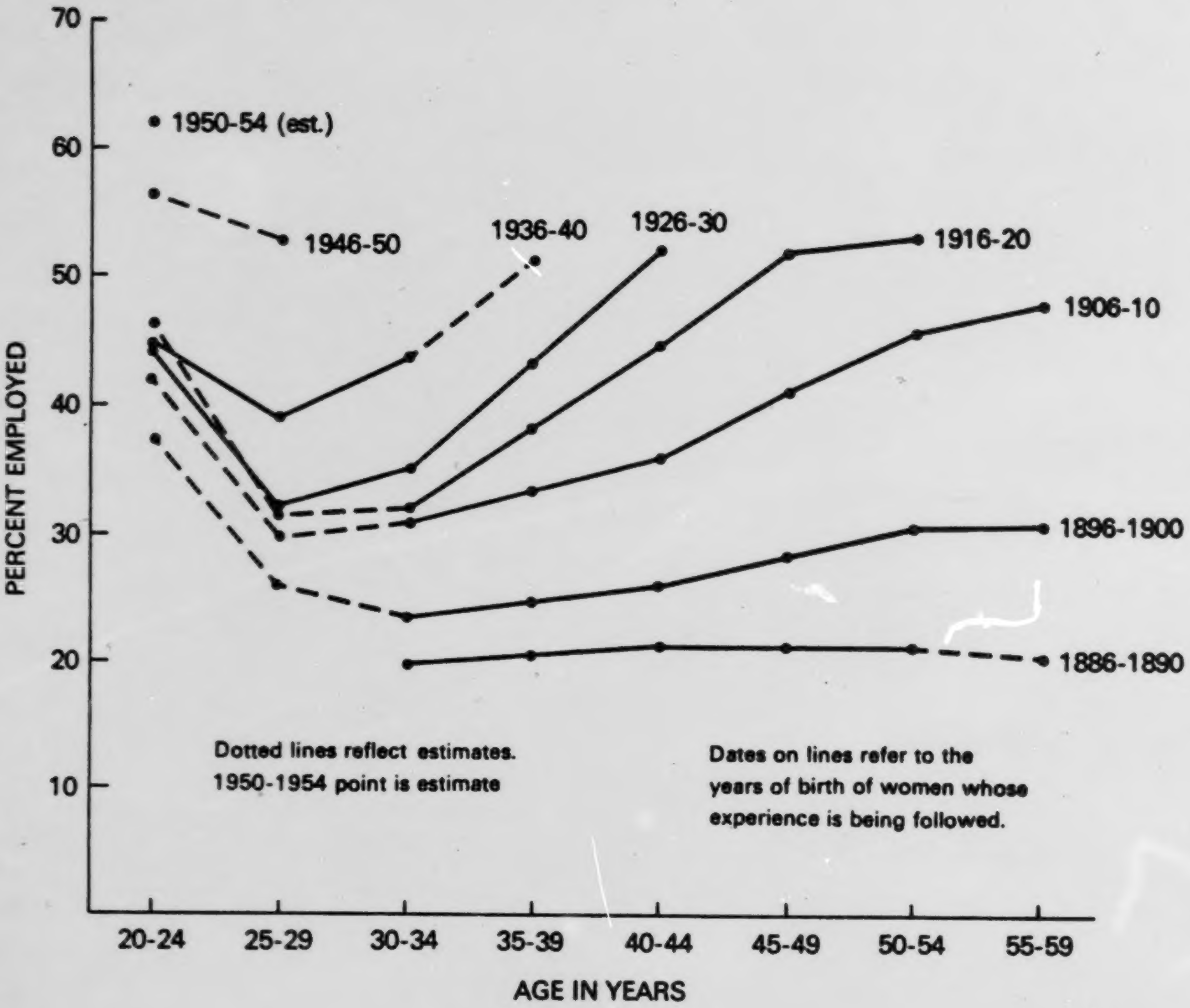
The high reliability and relative ease of the pill and IUD—techniques that have come into common use only recently—combined with the availability of abortion and sterilization—have produced a new possibility for effective control of timing and quantity of reproduction. Death and taxes may be inescapable, but childbearing has for most American youth been removed from the realm of fate. For many of the less educated and for many blacks and other minorities, an attitude of resignation toward fertility was common in the 1950s and 1960s . It is a remarkable aspect of social change, induced by far more than simply technological change in contraception, that a sense of control over one's reproductive fate has so quickly become widespread even among these groups.

Increases in the rates of female labor force participation continued through the 1960s and early 1970s. Lower fertility exposes more women to the higher participation rates of those unencumbered by young children. In addition, regardless of level of childbearing, each successive birth cohort of women since the turn of the century has entered the labor force to a greater degree than previous cohorts, beginning at the teen ages before marriage and continuing throughout the life cycle (see Figure 5). The very large baby boom cohorts are now beginning this process, and they are doing so with very low rates of childbearing. Hence they should be exposed to the world of work in record proportions, with less interruption for childbearing or other reasons than was true for any previous cohort.

If the economy can absorb the rapidly expanding number of young women workers and if their fertility remains low for the next few years, we shall, I believe, witness an acceleration in the process of attitude formation and female role redefinition conducive to continued low fertility and high labor force participation.

During the 1950s and 1960s, fertility surveys detected a relative indifference about the choice between having 2, 3, or 4 children. Fewer than 2 was perceived as insufficient, and 5 or more was seen as excessive. Some sociologists see in these findings, in other survey responses, in tax policies, and in other societal arrangements evidence for a value system favoring a 3 - 4 child reproductive norm. Unfavorable economic circumstances, whether interpreted contemporaneously or in light of expectations developed while growing up, could cause reproductive performance to drop toward the 2-child realm, and favorable circumstances could push performance toward the 4-child level. Other sociologists

Figure 3. Age Patterns of Employment for Birth Cohorts of Women



Dotted lines reflect estimates.
1950-1954 point is estimate

Dates on lines refer to the
years of birth of women whose
experience is being followed.

SOURCE: Sweet, 1975: Figure 1.

dispute whether a fundamental value system needs to be posited to account for the baby boom and the various attitudinal and institutional evidence. These sociologists tend to see the attitudes toward desired family size as being more a response to circumstances than a cause of those circumstances.

I do not believe it necessary to resolve this controversy over interpretation of the baby boom. From either perspective I see evidence of a new normative pattern of low fertility. Recent fertility expectations surveys reveal a marked shift away from the 3- and 4-child family and a remarkable concentration of favor on the 2-child family. The 1-child family and the no-child family have gained only a little in acceptance. (Some see in this small change the harbinger of larger change to come; others see the firm residue of familism that could quickly blossom forth again into acceptance of larger families.) Sociological studies of women's sex role attitudes combine with evidence of women's increased economic and political participation and of continued vitality of affirmative action and women's liberation programs to confirm, in my estimation, that basic changes have occurred and will continue for some years to come.

In short, I find it implausible that women generally, with the aid and support of men, will resume a high fertility regime composed of accidential pregnancies and restrained labor force participation. Nor do I see evidence of any deliberately embraced high fertility regime. Hence I place my largest bet (but not all of my gambling funds) on a continuation of subreplacement fertility, at the 1.9 level, rather than a climb back to the 2.1 level or a long march up to the 2.7 level.

The Census Bureau suggests two reasons for preferring its replacement fertility series. First is that at some time an approximation to zero growth is necessary and therefore "an ultimate assumption of fertility at replacement level appears reasonable" (p. 21). This reason, of course, does not justify reliance on a 2.1 fertility level at any particular time in the projection period 1975-2050. The second reason is more persuasive. Young wives, assessing their current experience and reporting their birth expectations, "suggest that their completed fertility will be around replacement level" (p. 21).

A close look at the way the Bureau's projections work out for the young women currently in the early childbearing years is instructive. Table 1 presents completed cohort fertility rates for women born in selected years. For now I shall concentrate on data for white women because it is easier, sociologically, to consider the majority racial group rather than the national composite, and also because the Census projections assume that fertility for blacks and other racial minorities will converge to the rates for whites. In the Table, rates for the cohorts born 1900 through 1925 are estimates based on completed experience. Cohorts born in 1930 or later had not completed their childbearing years in time for final data to be available when the projections were made. For cohorts born 1930 through 1945, most of their childbearing had already occurred and only the last portion had to be projected; hence the projections for these cohorts are similar for all three series.

The intriguing portion of this Table is the completed fertility projections for cohorts born in 1950 and 1955 (women who were aged 25 or 20 in 1975). Their early fertility is so low that these women are not expected to reach the ultimate target of 2.1 children that defines the Series II projection. The projection for the 1950 cohort is 1.92 children and for the 1955 cohort is 1.95 children. If one perceives fertility as dropping slightly lower in the late 1970s and early 1980s, then the reproductive performance of these cohorts to date is consistent with eventual completed fertility of 1.78 or 1.68 children per woman (Series III). Even under the Series I assumption that a smooth rise in fertility will take place, the 1950 cohort of white women is projected to finish childbearing with 2.08 children per woman.

These figures indicate that barring sharp acceleration or deceleration in fertility, the young women currently in the midst of childbearing may easily complete their reproductive years with 1.9 or 1.8 children per woman. This level is far below the previous low of 2.2 for the cohort of 1910, and below the approximate replacement level of 2.1 envisaged by the Bureau as most reasonable. To attain the ultimate level of 2.1, the Series II projections portray a drop well below that level and then a rise back to it. There is a rationale for perceiving current fertility as only temporarily low. "The onset of the recent decline in fertility appears to be correlated with the onset of unfavorable economic conditions" (p. 6) from 1969 to 1971, and the further rise in unemployment and decline in median family income 1973-75 "suggests the possibility that annual fertility in the near future could drop below or remain around its current low level" (p. 7).

If economic factors are a cause and not simply a coincidental accompaniment of the current very low fertility, then a projection of gradually improving economic circumstances (especially as those that confront young families) could justify a projection of a modest increase in fertility. That is the defense for the Series II projections.

If the early childbearing and labor force experiences of a cohort tend to set the subsequent behavior of the cohort, then a pattern of low fertility, whether caused by short-run economic circumstances or other factors, will have some tendency to persist even if those short-run circumstances change. Because not all women born in a single year begin marriage and childbearing simultaneously, there is an intermingling of birth cohorts in the reproductive behavior of each year. Sharp changes from one cohort to the next are unusual. A low fertility pattern that is sustained for a decade may become resistant to rapid change even if there is a sharp economic upturn. In the 1970s there is a simultaneous occurrence of very low fertility, very high rates of female labor force participation, pervasive sex-role attitudinal change, and economic and social structural changes facilitating women's "liberation." The convergence of all these forces seems, as I suggested previously, to have enormous potential for mutual enhancement.

As the Census Bureau is careful to note, the correlation of economic and fertility downturns "is not synonymous with causation" (p. 6). The causes of complex social behavior, such as the reproductive life cycle of successive cohorts of women, are manifold. Business cycle effects probably are a significant part of the set of causes, but a reasoned prognostication requires consideration also of other elements of the causal set. I find plausible but not persuasive the arguments of those who forecast a resumption of markedly higher fertility. I find more plausible and more persuasive the properly cautious Census Bureau forecast that fertility may stabilize at about the 2.1 level. My own guess is pinned on the less cautious view that an ongoing complex of fundamental social change has occurred and will continue in such a fashion as to sustain a pattern of subreplacement fertility.

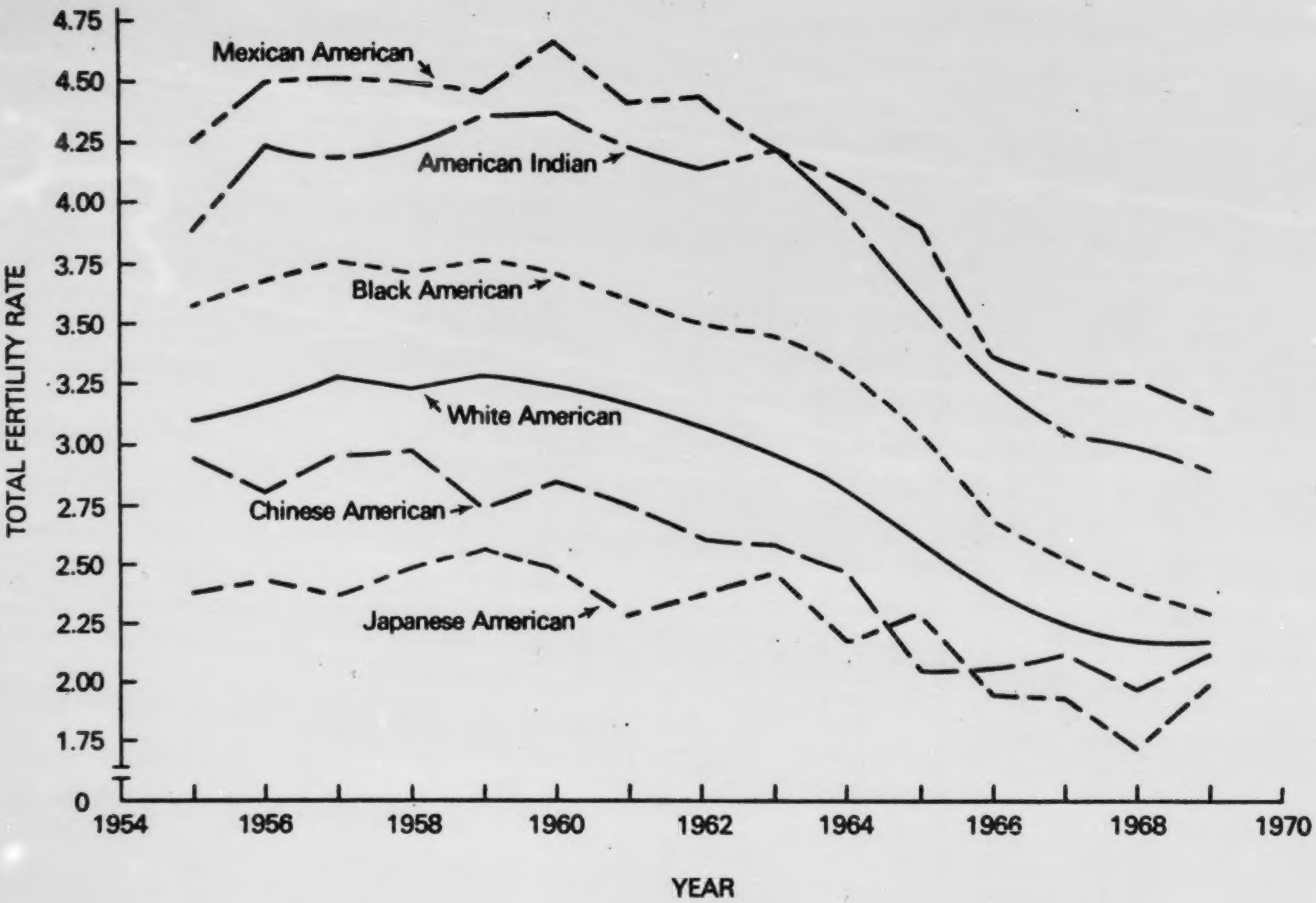
D. Family, Fertility, and Ethnicity

To convert a projection of the age and sex composition of the population into a labor force projection requires assumptions about future labor force participation ratios. Participation ratios, especially for women, are affected by fertility levels and family composition. The principal minority groups in the United States have family and fertility patterns somewhat distinctive from those of the white Anglo majority. Hence it is appropriate, to the extent feasible, to consider each group separately.

The baby boom and the baby bust have been remarkably pervasive among subgroups of the U.S. population (Rindfuss and Sweed, 1975). The upward and downward trend appears for nearly every subgroup for which data can be assembled: ethnic groups, income groups, educational attainment groups, regional groups, urban and rural groups, and various combinations of these attributes. The pattern for six racial or ethnic groups is portrayed in Figure 4. The total fertility rate is a cross-sectional version of the cohort fertility rates used in the population projection series. Because timing of fertility in the life cycle can shift with or without shifts in ultimate completed family size, the trends in total fertility rates need not coincide with trends in cohort rates, but both types of data reveal similar broad fertility trends. In Figure 4 the fertility rate is expressed as children per 1,000 women rather than per woman. The rates were derived by extensive manipulation of the 1970 Census public use tapes, and it was not possible to carry the series back to the beginning of the baby boom.

The important features of Figure 4 for our purpose are two. First, each of the minority groups experienced the same general trend as the majority. Second, fertility of blacks, Chinese, and Japanese has converged very close to the levels for whites, but Mexican-Americans and American Indians continued in the late 1960s to have sharply higher fertility.

Figure 4. Total Fertility Rates for Six Racial or Ethnic Groups: 1955-1969



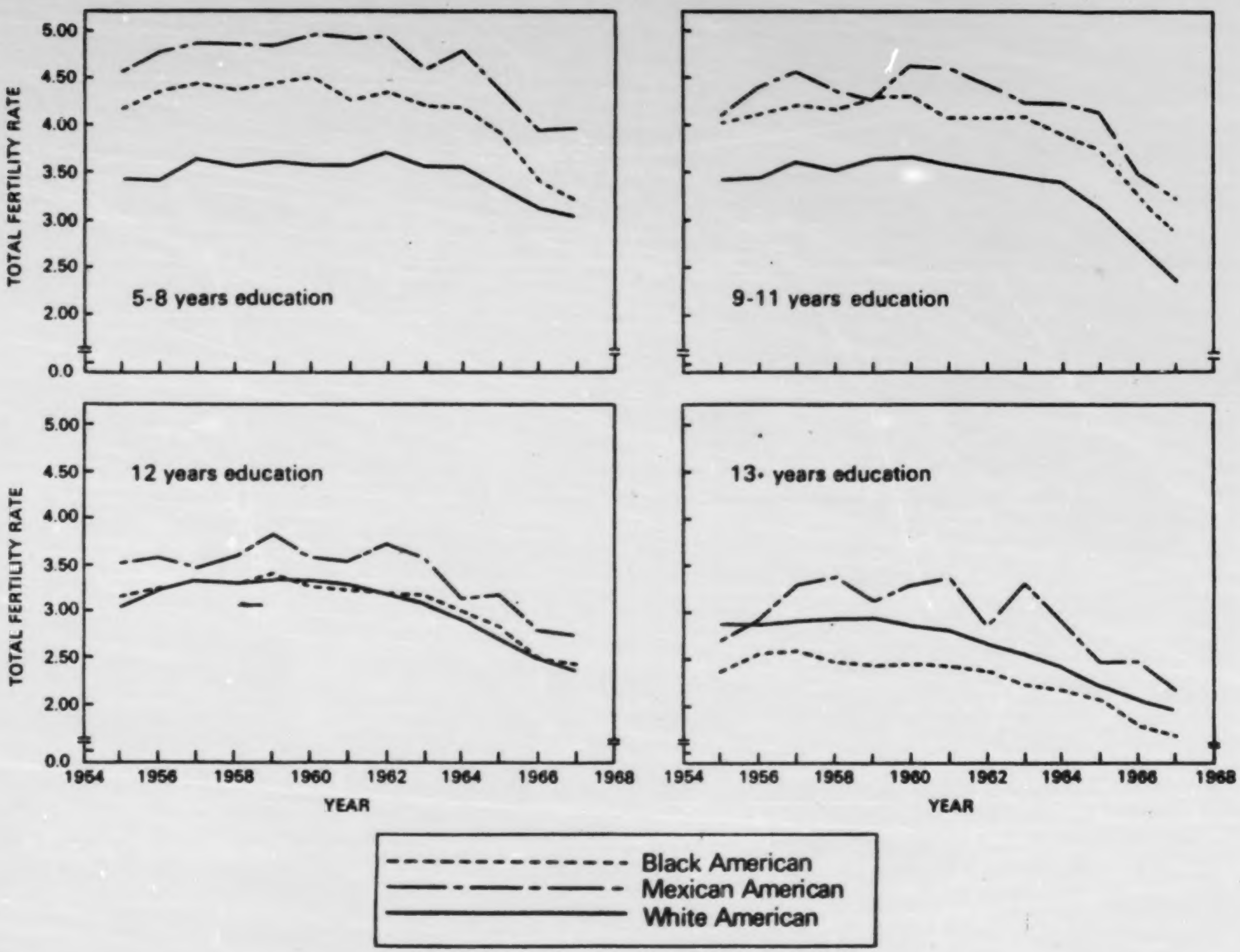
SOURCE: Rindfuss and Sweet, 1975: Figure 2

For the three largest of these six minority groups, trends for each level of educational attainment are portrayed in Figure 5. Because the rates are calculated from a sample, some of the trend lines display erratic fluctuations, but the pervasive fertility decline is apparent. The closeness of black to white fertility in recent years is revealed for each educational level, and Mexican-American fertility rates are again uniformly higher.

Blacks and Mexican-Americans differ from the white Anglo population on a number of characteristics that affect fertility levels--income, education, age at marriage, duration of marriage, region and type of place of residence, and number of children already born. Each of these characteristics was included in a multivariate analysis of fertility differentials for the period shortly before the 1960 census and for the period shortly before the 1970 census (Rindfuss and Sweed, 1975: Table 9). Controlling for the effects of all of these characteristics, black fertility was 32 percent above white Anglo fertility in the late 1950s and only 12 percent above in the late 1960s. Mexican-American fertility was 34 percent above white Anglo fertility in the late 1950s and 45 percent above in the late 1960s. The quite distinct trends in the differential position of the nation's two largest minority groups warrant further discussion before an assessment is made of the implications for labor force participation.

Black Fertility and Family Patterns. The potential for convergence of black fertility levels to the lower levels of the white population has been apparent for many years. The general pattern evident in Figure 5, that fertility of blacks with high school or college education is as low as or lower than for comparably educated whites, has long been known. Thus as increasing proportions of the black population acquired greater amounts of formal schooling, convergence in fertility levels could be expected. Among black women aged 20 to 24, the proportion completing high school increased from 45 percent in 1960 to 75 percent in 1974.

Figure 5. Total Fertility Rates for White, Black and Mexican Americans by Education: 1955-1967



SOURCE: Rindfuss and Sweet, 1975: Figure 3.

Responses to survey questions on desired or expected fertility have also indicated a potential for convergence in actual fertility. A study of a national sample in 1960 (Welpton, Campbell, and Patterson, 1966:369) concluded that high fertility was concentrated among blacks with a southern farm upbringing:

> If we combine couples in the college group with noncollege couples who have had no southern farm background, we find that whites and nonwhites have approximately the same past and expected number of births. Inasmuch as this group contains 63 percent of the nonwhite couples, we may say that a majority of nonwhite couples have and expect about the same number of births as similar white couples.

In the years since 1960 not only has the educational level of young black females entering the reproductive ages increased sharply, but so has the proportion born and raised in northern or southern cities. In the early 1970s the annual Current Population Survey reports on birth expectations of young wives revealed virtually identical figures for blacks and whites.

Both family patterns and contraceptive practices must be considered as immediate determinants of the higher fertility of blacks in the 1960s. Marital fertility of blacks and whites was much more similar than was total fertility. A recent estimate (U.S. Bureau of the Census, 1976) indicates that during 1965-69, about 1 of every 8 white first births occurred to mothers who were single at the time of the birth. Of black first births, nearly 1 of every 2 was premarital. Premarital conception was far less likely to be followed by marriage, before or after birth, for blacks than for whites. The structural counterpart of this fertility pattern is the large proportion of female-headed families among the black population and the large proportion of children living apart from their father.

Studies in the 1950s and 1960s showed much less effective contraceptive use by black women than by white women. Many black teenagers took no contraceptive precautions, and knowledge of effective techniques was poor among those who reported using some method to avoid pregnancy. The 1973 National Survey of Family Growth revealed that black women had rapidly been adopting the newer contraceptive methods and were far more effectively planning and limiting their reproduction (Westoff, 1976:57):

> Reliance on the most highly effective methods--sterilization, the pill and the IUD--is now much greater among black than among white contraceptors (81.0 percent compared with 68.3 percent); and 92.0 percent of black users under age 25 now employ these methods....It seems highly probable that by the end of the 1970s, almost all married couples at risk of unintended pregnancy in the United States will be using contraception, and almost all contraceptors will be protected by the most effective medical methods. We are rapidly approaching universal, highly effective contraceptive practice. This trend, of course, is quite consistent with the decline of unintended births observed in the United States between 1961 and 1970 and the sharp reduction in such unplanned fertility that has probably continued to occur during the last five years.

The 1975 population projections assume a rapid convergence of black cohort fertility to white cohort fertility (see Table 1). For the Series I projection, black fertility is projected as stabilizing at the 2.7 level, while white fertility catches up. For the Series II and III projections, sharp declines in black fertility are projected for women currently in the main childbearing years and for each succeeding cohort, with women born in 1970 finally reaching the projected reproductive plateau of 2.1 or 1.7 children. Until that cohort is well along in its childbearing, black fertility is projected to remain somewhat above white fertility.

Analysts of trends in a number of social and economic characteristics have long observed that levels for blacks lag 10, 20, 30 or more years behind those of whites. The 1975 population projections indicate a closing of the black/white fertility gap within a generation. Few prognosticators foresee such rapid closing of the other main racial gaps—in education, occupation, income, housing, and so forth. There is no reason that trends in one gap cannot diverge from trends in another, but to project such a divergence may strain credibility. I have already reviewed some of the evidence and have indicated my general agreement with the justification provided by the Census Bureau for projecting an end to racial differentials in fertility. My additional comments are more cautionary than supportive. First, a brief supportive note. When the modern period of study of American fertility began in the 1930s and 1940s, there were sharp differentials in fertility behavior among the various social and economic groups. During the baby boom, increases in fertility rates were sharpest for some of the socioeconomic groups with lowest fertility, and during the baby bust declines have been most precipitous for some of the groups with highest fertility. Thus many differentials have narrowed, and it is not so extraordinary that the racial differential has done likewise.

The cautionary note comes from consideration of fertility trends in the context of family formation and structure. Black family structure and child-care arrangements continue to be distinctive. The latest annual report "The Social and Economic Status of the Black Population in the United States" (U.S. Bureau of the Census, 1974:4) summarizes recent evidence on "Family":

> The first half of the 1970s, like the 1960 decade, has been characterized by a downward trend in the proportion of black husband-wife families accompanied by a growth in the proportion of black families headed by a woman (with no spouse present). Between 1970 and 1975, the proportion of black husband-wife families declined from 68 to 61 percent; the proportion of female heads increased from 28 to 35 percent.
>
> The influence of certain social and economic factors such as the high rate of marital dissolution, the retention of children by unmarried mothers, greater economic independence of women, and other factors is reflected in changes which have occurred in the characteristics of black female heads. Black female heads of families were more likely to be single or divorced (taken together) in 1975 than in 1970, to be younger, and to have more children to support.
>
> Reflecting the increase in female-headed families, the percentage of black children living with both parents dropped sharply in the 1970s. By 1974, about 56 percent of all black children in families were living with both parents. It should be noted, however, that most of the

Table 1. AVERAGE NUMBER OF CHILDREN BORN TO WHITE AND BLACK WOMEN, FOR COHORTS 1900-1925 (ACTUAL) AND 1930-1970 (PROJECTED)

Cohort (Year of Birth)	Number of Children Born per Woman					
	White			Black		
	Actual					
1900	2.54			2.99		
1905	2.33			2.62		
1910	2.24			2.62		
1915	2.40			2.72		
1920	2.70			3.21		
1925	2.89			3.57		
	Projected					
	I	II	III	I	II	III
1930	3.10	3.10	3.10	3.89	3.89	3.89
1935	3.07	3.07	3.07	3.87	3.86	3.86
1940	2.73	2.72	2.71	2.34	3.33	3.32
1945	2.24	2.20	2.16	2.77	2.74	2.71
1950	2.08	1.92	1.78	2.68	2.53	2.39
1955	2.27	1.95	1.68	2.69	2.40	2.12
1960	2.70	2.09	1.69	2.70	2.30	1.95
1965	2.70	2.10	1.70	2.70	2.20	1.82
1970	2.70	2.10	1.70	2.70	2.10	1.70

SOURCE: U.S. Bureau of the Census, 1975b: Tables A-2, A-3.

> black children not living with both parents were being cared for by at least one parent or by a family member, generally the grandparent.
>
> For both blacks and whites, the proportion of children living with both parents appears to be associated with income level. For example, among black families with incomes under $4,000, less than one-fifth of the black children lived with both parents in 1974. At the $15,000 and over income level, nearly all—9 out of 10—black children were living with both a mother and a father.

Are these trends in family structure consistent with sharply increased frequency and efficiency of contraceptive use and sharply reduced fertility? The "Moynihan Report" on the Negro family, issued in 1965 following the first of the urban conflagrations of the 1960s in the Watts district of Los Angeles, rekindled controversy over the interpretation of black family structure. With respect to causes, should first rank be assigned: (a) to the heritage of a slave system that destroyed marriage but ordinarily preserved the maternal bond; (b) to a personality system and world view that emphasized short-term perspectives and a fatalistic acceptance of what life doles out, including pregnancy; or (c) to a rational and functional adjustment to specific contemporary social and economic circumstances, such as poor earnings prospects, high rates of unemployment and underemployment, a welfare system that often penalized couples who wished to live together? With respect to consequences, is the increasing prevalence of female-headed households and the growing proportion of children not living with both parents: (a) a cause of community disorganization and a new generation of youth handicapped in preparation for adulthood; (b) a consequence of such disorganization, slum living, and dismal economic circumstances and prospects; or (c) an adaptation to dismal community and economic circumstances that more often than not is successful in rearing the next generation and enabling the current adult generation to cope with life's instabilities?

This is not the place to rehash the original controversy (see Rainwater and Yancey, 1967) or to attempt an updating and full assessment of trends since 1965. My own interpretation emphasizes the (c) perspectives on both causes and consequences of family trends. I believe that is the only parsimonious way to make sense of both the family and fertility trends. Note that the early 1970s were a period of severe economic recession, extremely high unemployment for young black women and men, and of failure in the effort to effect major reform in the welfare system. The lesser role of formal marriage in childbearing decisions and the lesser role of formal male dominance in living and child-rearing arrangements may be viewed as indicators of assertive efforts to preserve self-esteem and independent control over one's own destiny, just as careful use of contraception and rapid adoption of newer methods, including sterilization, are indicators of efforts to cope rather than succumb.

The perspectives one adopts on black family and fertility trends affect the task, to be discussed shortly, of assessing the consequences of these trends for prospective labor force participation.

Mexican-American Fertility and Family Patterns. The data presented at the beginning of this section indicated that Mexican-Americans shared in the general reproductive decline in the 1960s but in 1970 continued to have much higher fertility than white Anglos or blacks. Current fertility information is less readily available for Mexican-Americans than for blacks or whites because the former are not a racial group in the U.S. statistical system, and are not identified on birth certificates. The national population surveys used for the various fertility and contraceptive use studies have likewise not provided separate information for this group, which numbered 6.7 million persons in March 1975.

The Bureau of the Census (1976) now releases an annual report on persons of Spanish origin, based on the March Current Population Survey, and most of the detailed tables distinguish persons of Mexican origin from others of Spanish origin. The censuses of 1950 and 1960 reported data for persons of Spanish surname in five southwestern states. The 1970 census provides a sort of bridge by presenting many tabulations for persons of Spanish or Mexican origin and some of the same tabulations, plus others, for persons of Spanish surname or language. (For a review of these ways of identifying the target population, see Hernandez, Estrada, and Alvirez, 1973). It remains difficult to place reliance on observed trends in family structure for a group that is being defined in different ways at various points on the trend line.

Ethnographic and small-scale studies of Mexican-American communities in the 1940s and 1950s indicated that the family system was very traditional, with the woman's role being that of homemaker and mother. The Spanish, Catholic, and rural heritage were described as retaining vitality even as the Mexican-Americans in the United States were becoming a predominantly urban people. An analysis of 1960 census data raised some questions about this perspective (Grebler, Moore, and Guzman, 1970:18):

> Although the findings on family size validate a common notion [of high fertility], those on family stability do not—at least if one starts from the impression that the Mexican-American family represents a strong bulwark of traditional stability. The incidence of broken families exceeds the Anglo incidence by a substantial margin, and the percent of women separated or divorced from their spouses is somewhat larger than among the Anglo population.

The situation in 1975 was similar (U.S. Bureau of the Census, 1976). Among Mexican-American families, 81 percent were husband-wife families, and 15 percent had a female head. These percentages place the Mexican-Americans statistically closer to the white Anglo population than to the black population. Similarly for children living with both parents, the 80 percent for Mexican-Americans does not indicate a family system untouched by urbanization and poverty, but it is far above the 56 percent figure cited earlier for black children.

The Mexican-American population is concentrated in the southwestern states not far from Mexico. Spanish language is used in the home by most Mexican-American families, and there is a large volume of visiting in both directions across the border. The recent immigrants among the Mexican-American population thus find it easier to maintain social and cultural relations with the country of origin than do most immigrants to the United States. The concentration of Mexican-Americans in barrios in a dozen or so large cities further facilitates maintenance of distinctive linguistic and cultural traditions. If these distinctive traditions include very low rates of labor force participation by Mexican-American women, it is necessary to assess whether these traditions are declining in force and if so, how rapidly.

No analysis of residential segregation of Mexican-Americans has been published utilizing the 1970 census data. The 1960 data revealed less extreme segregation between Mexican-Americans and white Anglos than between Negroes and white Anglos. Informal examination of selected 1970 census data reveals continued Mexican-American concentrations but a far more widespread scattering of small percentages of Mexican-Americans among urban subareas than is the case for blacks. The movement of some persons out of the barrios provides no more basis for predicting rapid residential dispersal than there is for predicting rapid industrial or occupational dispersal of the Mexican-American labor force.

Among European immigrant groups use of a language other than English declined very rapidly in the second and third generations. Among Mexican-Americans, many of whom are already second and third or a later generation in terms of residence within the current boundaries of the United States, use of Spanish is common. A survey of language usage, conducted in July 1975, provides some indication of the character of the reliance on Spanish (U.S. Bureau of the Census, 1976). The preliminary report that is available now does not distinguish Mexican-Americans from other groups, and it should be noted that of the total Spanish-origin population in 1975, 60 percent were Mexican-American, 15 percent Puerto Rican, 7 percent Cuban, and the remaining 18 percent of various origins. In 1975 there were 4.0 million persons aged 4 and over whose usual language was Spanish, and another 4.3 million with Spanish as their second language. (This total of 8.3 million with Spanish as the usual or second language compares with the total of approximately 10.1 million persons of Spanish origin aged 4 and over.) Of those reporting Spanish as their usual language, just over half report "difficulty with English." The proportions having difficulty with English are highest among the older population and least among those of school age, but substantial numbers of those enrolled in school are reported as having difficulty with English.

The various data on Mexican-Americans are difficult to interpret from a simple assimilationist perspective. As the nation's second largest minority it is possible for many Mexican-Americans to function mainly within the group, to retain Spanish as their usual language, and to insulate themselves against cultural homogenization. But it has been easier for Mexican-Americans than for blacks to shed their ethnic identity or to merge it into the general American pattern. When the members of an ethnic group, as is true of both Mexican-Americans and of blacks, are highly urbanized, universally exposed in the younger generations to the formal educational system at least to the high school level, involved (but not equally participant) in all levels of the general economic system, represented to a significant (but again not equal) degree in the political system, and exposed to the mass media and mass culture, it is difficult to foresee which aspects of ethnic culture and ethnic identity will endure and which will yield or adapt.

Projection of Mexican-American family and fertility—the two topics of central interest—would be difficult enough if the group were well documented in our statistical system and if the group were relatively closed to immigration and emigration. For blacks, estimates of the large undercount in census data are already incorporated into the population projections, and my assessment of trends was made in light of long-time series and a low rate of international migration. For Mexican-Americans the quality of the census counts is not known, the time series data are few and based on shifting concepts, and the rate of international migration is thought to be such as to render suspect if not downright useless much current data and any efforts at projection.

Examination of census and survey data for 1970 and 1975 does not lead me to different conclusions than those voiced in the large-scale study that drew on 1960 census data and a variety of other information and surveys for the mid-1960s (Grebler, Moore, Guzman, 1970:582):

> Our study shows the Mexican-American family to be quite different from the traditional patterns suggested in the literature. The extended family household is extremely rare. The role of the compadrazgo has diminished. A high incidence of broken families indicates that the Mexican-American family possesses no extraordinary capacity to resist the strains of poverty and of rapid social change. The data do not permit us to judge whether there has been drastic change over time, or whether earlier writings, by emphasizing norms rather than reality, may have idealized the existing situation.
>
> Specifically, the roles of husband and wife in today's nuclear, urban family differ greatly from the cliche of the dominant man and the submissive woman. Decisions on spending and the division of household tasks are comparatively egalitarian, as in Anglo families of similar social-class level, although the female retains some specialized functions in a restricted domestic area.

From the perspective of family and fertility patterns in Mexico, the Mexican-American patterns are clearly "American." There are differences from the white Anglo patterns, but these differences are small when compared to the potential range of differentiation. The evidence of the past thus seems to be that family and fertility patterns for Mexican-Americans have already changed greatly toward white Anglo patterns. Further change in the future could be expected, barring the need to take into account new immigrants, and continued fertility decline seems likely as the perfect contraception regime becomes universal. But I am less certain whether the family composition, now that it has become focused on the nuclear family, will converge on the white Anglo pattern or tend to develop toward the pattern displayed by the other large economically depressed minority, blacks.

E. Future Labor Force Participation Rates

Participation rates reflect many facets of the organization of society and economy. Among men, labor force participation approaches universality at ages 30 to 50 and no change is anticipated by most projectors. For younger men the age trajectory of participation in the labor force depends on the quantity of schooling consumed, the need for an availability of part-time jobs, the job and earning prospects for teenagers of various levels of formal education, and so forth. For older men, the age trajectory of declining participation in the labor force depends on Social Security rules and benefit levels, an array of similar rules and levels from governmental and private retirement funds, personal choices and contractual agreements regarding retirement, the ability of the economy to provide full or part-time jobs for older persons, political and economic decisions affecting demand for the supply of such jobs, and other such factors.

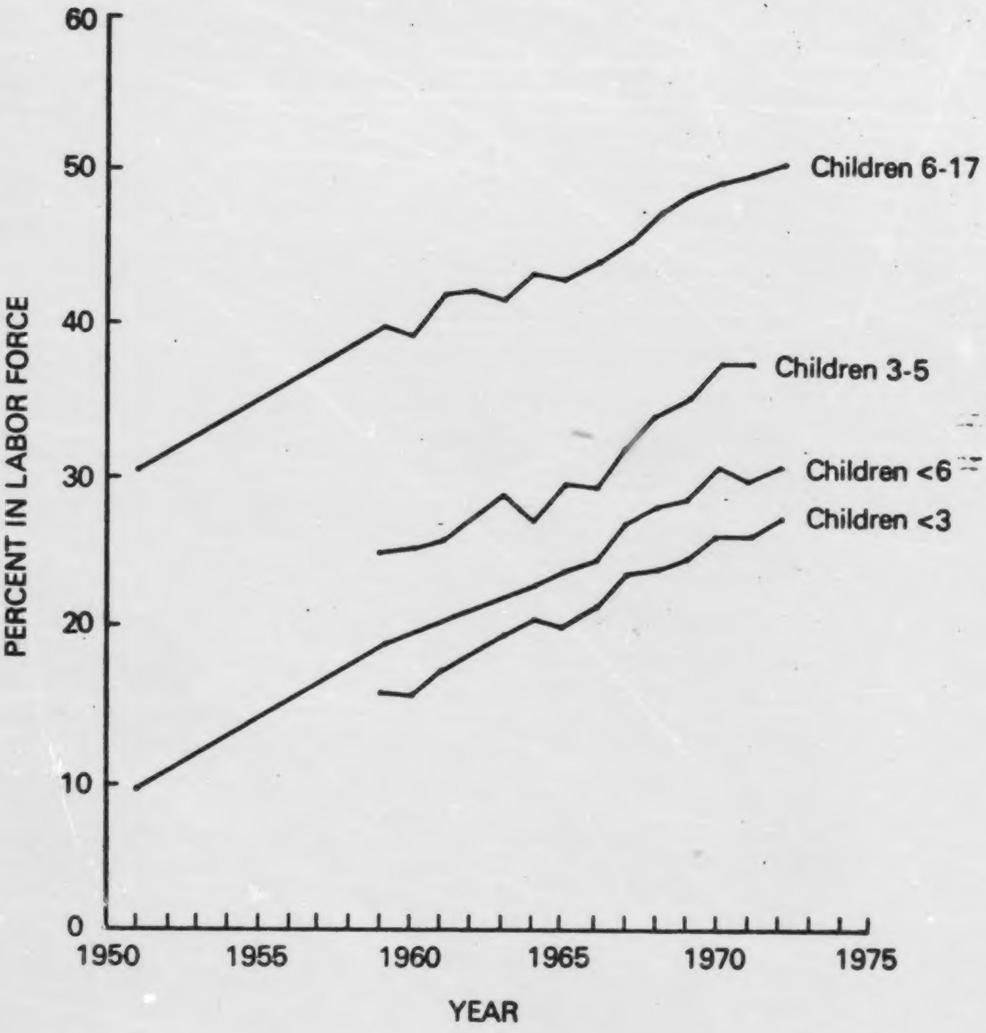
Demographic trends determine the number of men of each age, and hence affect the maximum potential supply of men to the labor force. Large fluctuations from the projected smooth trends in mortality and migration could, as I suggested in section A, affect labor force supply and, in cases of major social upheaval, participation rates. Changing fertility rates or marriage patterns could have some effect on male labor force participation. Higher ages at marriage and lower fertility rates tend to defer to later ages the assumption of family financial responsibilities and hence facilitate spending time in education rather than in the labor force. For longer-term projections, consumption of higher education seems likely to depend on the distribution of family size, which affects the ability of families to save and pay for higher education for their children.

Among women, labor force participation is more of an open choice than it is for men. At no stage in the life cycle are female participation rates as high as male participation rates. But during the last half century there has been a dramatic upward movement in female participation rates, and the greatest variance in projections of future aggregate rates hinges on the projections of future trends for women. All of the direct and indirect demographic influences on male labor force participation also apply to females, and in addition there is a large influence of fertility. The presence of young children in the home is a great deterrent to a woman taking paid employment. Although participation rates for mothers of young children have been increasing sharply, in 1973 two-thirds of women aged 20 to 24 who had infants at home were out of the labor force. These trends are portrayed in Figure 6.

The best perspective on rising female participation rates is obtained from cohort data. In Figure 3, age patterns of labor force participation are portrayed for alternate five-year birth cohorts of women, from the 1886-90 cohort (Sweet, 1975:3). The age profile for the oldest cohort is rather flat; at each age only about one of every five women worked. Single women from impoverished backgrounds sometimes worked for a few years before marriage, and married women worked if "they were the victims of one misfortune or another which deprived them of adequate support by a husband" (Smuts, 1971:51). Taking the 1886-90 cohort as a reference point, rapid change is apparent for succeeding cohorts (Taeuber and Sweet, 1976:51-52):

> We see among subsequent cohorts two separate patterns of change, each of which has been remarkably persistent for more than half a century. One pattern is for each successive cohort of women to begin their working ages with greater participation rates. There are some irregularities in the hierarchical arrangement of the rates for the successive cohorts at younger ages, but a perfect ordering appears at all ages above thirty....
>
> The type of change in which each successive cohort begins a process with higher rates than the preceding cohort may be called generational change. A second type of change is indicated by a change in the shape of the age-curve for successive cohorts; this is life-cycle or career change....

Figure 6. Labor Force Participation Rates of Women Living with Spouse and Children



SOURCE: Taeuber and Sweet, 1976: Figure 7.

> ...The dropoff in labor force participation as women move through the early stages of family formation and care for preschool children gradually diminished, so that for the cohorts of [1936-40] and later, labor force participation at ages twenty-five to twenty-nine was nearly as great as at ages twenty to twenty-four. As women move into the later stages of family maturation, in which all of the children are in school and the oldest are leaving home, labor force participation rates rise from their minimum levels, and the amount of that rise has been increasing.

The continuity of both generational and career change through more than half a century is extraordinary. Inspection of Figure 3 does not easily reveal the expected influence of the Depression, the economic expansion and shortage of males of World War II, and the rapid rise in child-care burden that occurred during the baby boom, nor is it easy to perceive the effects of temporal fluctuations in the industrial and occupational structure or in the associated demand for female employees. Few social trends of the last half century have been so regular.

In Figure 3, the early experience of the most recent cohorts indicates unusually great generational change. It is these cohorts that are marrying later, divorcing frequently, and having few children. It is these cohorts whose early labor force experience is simultaneous with the growth of the women's liberation movement and equal rights legislation and affirmative action programs. If Figure 3 is used as a basis for tracing the future trajectory of employment for these women, continued rapid increases in female labor force participation rates can be expected.

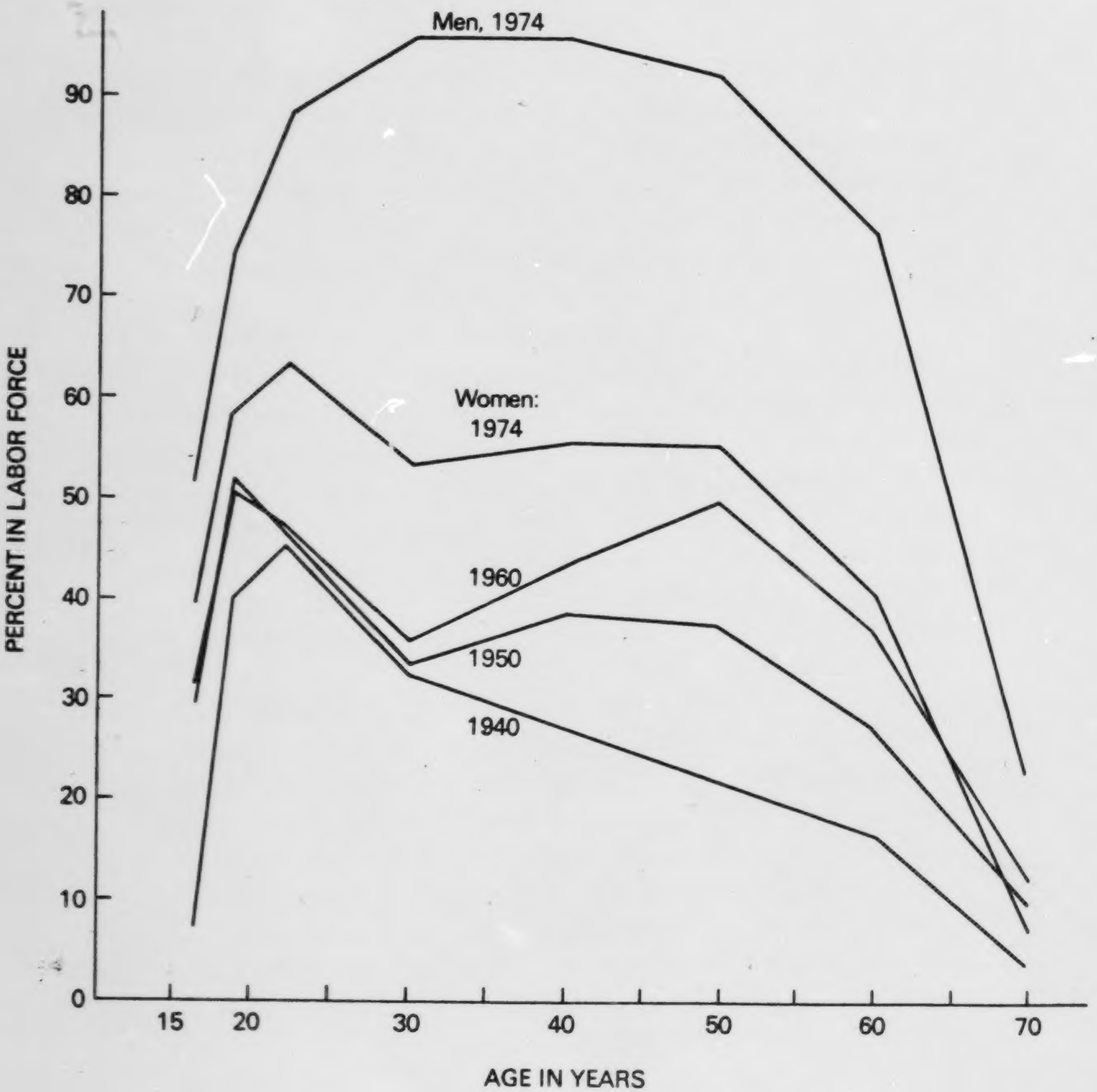
No trend continues forever, and projectors of future female labor force participation rates must decide upon a projection technique that does not allow the rates to climb to "unreasonable" levels. For the 1976 Bureau of Labor Statistics projections of the labor force (Fullerton and Flaim, 1976), a linear regression technique is used to fit a trend to the 1955-75 participation rates, by age and sex. It is assumed that the rate of change determined for 1955-75 will gradually diminish in the future so as to reach zero in 20 years. Thus, between 1975 and 1980 the projection is nearly linear, by 1990 it is well below a linear extrapolation, and after 1995 participation rates are assumed to be constant.

A cross-sectional rather than a cohort view of trends in female labor force participation is given in Figure 7. The BLS projection represents an effort to draw lines for future years on this chart, utilizing past trends along vertical lines (age groups) to calculate how much higher to draw each future line. By scaling the rate of change down to zero over 20 years, the ultimate participation rates for women remain well below those for men in each age group.

The same basic data underlie Figures 3 and 7. The cohort array in Figure 3 presents a more regular appearance, and I think a technique for projecting cohort participation rates would start with a more regular set of past trends than obtains for the cross-sectional array. The dramatic shift in the frequency and timing of work in the female life cycle does not yet seem to have run its course. Indeed, even if generational change were to diminish to zero over a 20-year period, career change would nevertheless be expected to alter participation rates during the 40-year working-life-cycle of women starting their labor force careers 20 years from now.

The most important advantage of the cohort representation is that it more readily fits a sociological or socioeconomic perspective on the character of change. The advantages of a cohort perspective on fertility are well recognized by makers of population projections. I believe the same advantages obtain for the making of labor force participation rate projections. The cross-sectional extrapolations may or may not make sense when translated into cohort terms, but until that step is taken there is inadequate basis for evaluating their reasonableness either as formal extrapolations or as representations of plausible trajectories for future behavior.

Figure 7. Labor Force Participation Rates by Age for Women in 1940, 1950, 1960 and 1974, and for Men in 1974



SOURCE: Kreps and Leaper, 1976: Chart 1A.

The formulation of projections is a thankless task, particularly if the formulator is constrained to choose a best forecast or to emphasize only a narrow range of alternates. Criticism can be leveled from many directions. The title of a recent article—"The Great Labor Force Projection Debate"—suggests that any labor force projection will serve as a target for critics to shoot at, and shoot they do (Rosenblum, 1973). Rosenblum identified two broad classes of change in participation rates, induced and autonomous. The first class is more narrowly economic. "Changes in labor force size are ... induced by changes in demand at given wage rates" (p. 122). Changes in demand depend on how closely actual economic circumstances match the assumptions (often implicit rather than explicit) of the BLS projections, and on other aspects of structure and change in the economy. Autonomous forces are those noneconomic social and psychological factors that shift the response of the potential labor force to aggregate job opportunities. In the real world, of course, each cause affects and is affected by each other, so that it is difficult to delineate causes and to trace their mutual interactions.

In an earlier paper "On the Accuracy of Labor Force Projections," Rosenblum (1972:24) identified autonomously changing female labor force participation rates as one of the major sources of inaccuracy:

> This shift in participation patterns has been well beyond a level explainable by economic factors, that is, increased demand and wage levels, alone. The magnitude of the shift suggests the influence of social and psychological factors in addition to the economic ones, and to an interaction among them.
>
> Some of these factors reflect the changing role of women in society: growing work aspirations (backed up by statutory safeguards to prevent sex discrimination), greater willingness of mothers and employers to use child-care facilities, the need for more than one household paycheck, caused both by inflationary pressures and the steadily rising American standard of living, plus the postponing or foregoing of

> traditional family and childbearing responsibilities by many young women. While there may be asymptotic limits to growth in participation rates, these and additional factors hint that females, age 20-54, have not reached them yet.

All of the factors mentioned by Rosenblum as operating in the late 1960s and early 1970s have continued through the mid-1970s. The rising divorce rates; the increased separation of childbearing from marriage; the sizable changes in women's attitudes about their rights in the labor market and their roles in the home (Mason, Czajka, and Arber, 1976); and the increased tendency for the young, the old, and the divorced to establish their own households are other factors conducive to continued rise in female labor force participation. Returning to Figure 3 and the pervasive pattern of career change, I believe that for each birth cohort of women, experience with paid employment at each life cycle stage influences labor force participation at later stages. As employment before marriage and early in marriage becomes more and more common, shorter and fewer interruptions for childbearing and child-rearing are likely, and higher proportions of the cohort will work at later ages. In both the life cycle of the individual and in the life cycle of a cohort, early experience conditions later experience. I expect the "autonomous" factors increasing female labor force supply to continue to be enormously powerful, and I do not find evidence for an early slowing of the trend.

Forthcoming extensions of the 1976 labor force projections provide separate participation rates and estimates of labor force size by color: whites, and "blacks and others." The color projections are accomplished by splitting a projection of the total labor force rather than by separate assessment of trends in each group. The ratio of the participation rate for blacks and others to the labor force rate for all persons, within each age-sex group, was calculated for the base period, 1955-75. The trend in these ratios was projected, with constraints, producing three series: divergence, limited divergence, and convergence. The latter two series indicate (according to preliminary tables) virtual convergence by 1985 in black and white female participation rates at ages 35-64, but continued sharply higher white participation rates at ages 16-25.

Again I have difficulty evaluating the projection, for the technique while simple and neatly adapted to the need to keep separate white and black projections consistent with total projections, does not fit readily into any conceptual perspective on the process of changing participation rates. Analytically it is preferable to examine the trend in rates for each subgroup.

For Mexican-Americans no projections have yet been attempted. The paucity of long-term trend data dictates some modification in technique. The paucity of research on this segment of the labor force makes difficult the formulation of "reasonable" assumptions about future trends. The situation is similarly unfavorable for American Indians and other small minority groups.

F. Residence and Employment in Cities, Suburbs, and Nonmetropolitan Counties*

Suburbanization. During the 1960s the United States reached another landmark with respect to the spatial distribution of its population: more persons living in suburbs than in central cities or in the aggregate of nonmetropolitan places. Suburbanization has always been an integral part of the growth and expansion of urban life around selected nodal points in the American landscape. During the rapid urban expansion of the 19th century, cities had the political capacity to expand their boundaries so as to incorporate the growth that occurred at their periphery. A strong movement toward local community autonomy crippled the annexation process in many states around the turn of the century, and political and fiscal differentiation between central city and suburb was facilitated.

With improvements in interurban and intraurban forms of transportation and communication, rapid population concentration in metropolitan places was accompanied by the spreading out of each metropolis. The severe depression in the 1930s and the channeling of the productive processes of a revived economy toward the war effort in the early 1940s slowed the suburban spread. The postwar increases in construction activities, housing, manufacturing, and commerce outside the political boundaries of central cities were continuations of earlier trends, but at such a new scale as to warrant the public attention devoted to suburbanization. Rapid redistribution of populations and activities has altered significantly the structure of the metropolitan landscape. The multinucleated predominantly medium or low density environment has become more characteristic than the traditional high density big city.

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* This section draws heavily and directly from a manuscript prepared for me by Franklin D. Wilson. His research on these topics will be reported in much greater detail in his forthcoming book, Residential Consumption, Economic Opportunities and Race.

A 200-year perspective on the continuing redistribution of activities makes quite evident that the spatial structure of metropolitan areas is still in the process of evolving. Practically every new development in the technology of transportation and communication, building designs and operations, marketing techniques and organizational forms, tends to effect the manner in which residences, workplaces, and other social and cultural settings are spatially distributed within metropolitan areas.

In previous publications I have reviewed the residential redistribution of metropolitan population between 1960 and 1970, with particular attention to racial aspects (Taeuber, 1975a, 1975b; Taeuber and Taeuber, 1976). I shall give brief attention here to developments since 1970. Trend data for 1970-74 are given for the total population in Table 2 and for the black population in Table 3.

In 1974, approximately 38.6 percent of the total United States population lived in the suburbs of metropolitan areas. Suburbs increased their share of the total by 1.5 percent from 1970 to 1974. During these four years suburban areas grew at an average annual rate of 2.0 percent, while central cities declined at an annual rate of 0.4 percent. Decade by decade an increasing number of central cities, particularly the older larger ones locked in from areal expansion, have been losing population, but only in the last few years has this process reached the point of decreasing aggregate central city population. The national rate of growth has slowed in the 1970s, and the suburban rate has also slowed, but the differential between city and suburban rates has widened. The redistribution of metropolitan population has not yet run its course.

The underlying causes of the redistribution of population are numerous and mutually intertwined. Among them are these six, all of which continue in force and seem likely to be active for many years to come:

Table 2. DISTRIBUTION OF THE POPULATION BY METROPOLITAN STATUS, 1970 AND 1974

Type of Residence	Number (thousands) 1974	Number (thousands) 1970	Percent 1974	Percent 1970	Average Annual Percentage Change 1970-74	Average Annual Percentage Change 1960-70
Total	208,105	199,819	100.0	100.0	1.0	1.3
Metropolitan	142,223	137,058	68.3	68.6	0.9	1.5
Central Cities	61,836	62,876	29.7	31.5	-0.4	0.6
Suburbs	80,386	74,182	38.6	37.1	2.0	2.4
Nonmetropolitan	65,882	62,761	31.7	31.4	1.2	0.7

SOURCE: U.S. Bureau of the Census, 1975c: Table 15.

Table 3. DISTRIBUTION OF THE BLACK POPULATION BY METROPOLITAN STATUS, 1970 AND 1974

Type of Residence	Number (thousands) 1974	Number (thousands) 1970	Percentage Black 1974	Percentage Black 1970	Percentage Black 1960	Average Annual Percentage Change 1970-74	Average Annual Percentage Change 1960-70
Total	23,626	22,056	11.3	11.1	10.6	1.4	1.8
Metropolitan	17,878	16,342	12.5	11.9	10.7	2.2	2.7
Central Cities	13,777	12,909	22.3	20.5	16.4	1.6	2.9
Suburbs	4,101	3,433	5.0	4.6	4.8	4.4	2.3
Nonmetropolitan	5,748	5,714	8.8	9.1	10.3	0.1	-.05

SOURCE: U.S. Bureau of the Census, 1975a: Tables 2, 5, 6.

1. Improvements in the highway transportation network, especially the integration of major intraurban highway systems with major interurban thoroughfares. The energy crisis has not yet shown signs of greatly altering the widespread use of the automobile. Doubled or quadrupled investments in mass transit systems, even if forthcoming, cannot be expected to have much impact on the broad features of metropolitan population distribution, except perhaps in a few places.

2. The spread of urban amenities to suburban districts. This includes shopping centers, office buildings, sports and cultural facilities, and so forth. The central business districts have been losing their dominance in more and more functions, not solely in retail trade.

3. The continued demand for single family detached dwelling units, even if in the form of immobile mobile homes. The general demand for low density environments also affects the kinds of apartment structures being built, and their locations.

4. The political and fiscal structure of metropolitan areas, which allows suburban residents to express a demand for a narrow mix of public goods that reflects the preferences of residents, permits a low tax rate, and sustains property values according to traditional criteria.

5. The desire for less congestion, less noise, cleaner air and water. Of course, some central city neighborhoods outrank many suburban neighborhoods on these criteria, but particularly for residential neighborhoods the net balance seems likely to remain overwhelmingly with the suburbs.

6. The whole complex of problems making up the crisis of the central cities. These can be viewed as consequence as well as cause of suburbanization, but the processes have proceeded to such a degree as to seem generally irreversible. The racial, economic, and social class composition of central cities has changed. The residential housing stock in many central cities largely predates the Depression, and has suffered severely from inadequate maintenance and rehabilitation. And so forth through the familiar litany.

As the proportion of the population living in suburban areas has increased, so, with a lag, has the proportion of young adults born and raised in suburban settings. Large numbers of the white children born during the baby boom who are now entering the labor force and establishing households have little personal experience of the traditional American rural farm or small town society or of the bustling, crowded large central city. The suburban experiences and attitudes of these persons may have a profound effect on shaping the spatial, socioeconomic, and political structures of metropolitan areas in years to come. Fava (1975:15) has formulated three provocative hypotheses about this effect:

> 1. Being suburban born and reared will exert a strong influence toward preferring suburban residence in the future.
> 2. Suburbanites are more locally-oriented in their contacts, a characteristic which is likely to intensify as there are more suburbanites whose life history is suburban.
> 3. Suburban attitudes toward blacks and toward big-city problems can best be described as tolerant aloofness and non-involvement....

Empirical evaluation of these and similar hypotheses about generational change constitutes one of the research frontiers for urban studies.

The suburbanization process has never been as homogeneously "young middle-class white family" as some sociologists and social commentators have suggested. Participants in suburban growth have been an increasingly heterogeneous mixture with respect to social class, income, and family type. With each passing year the residential composition of suburban areas has become more and more differentiated as a result of aging of the housing stock, changing patterns of new construction, and increasing construction of apartments. The young singles and the aged, the low- and high-income families, have joined the middle-income husband-wife-growing children families, and the suburban empty-nest couples and widows have shown little inclination to move into the central city.

The participation of blacks in the suburbanization process has been very slight. In 1960 blacks constituted 4.8 percent of the aggregate suburban population, (Table 3), and many of these blacks lived in long-established black neighborhoods of southern towns and villages that became suburban by dint of the metropolis expanding around them. By 1970 the suburban black percentage had dropped to 4.6, but from 1970 to 1974 it increased to 5.0. The annual rate of increase in suburban black population during those four years was a very high 4.4 percent. Increasing suburban heterogeneity and increasing black economic status have produced an enormous potential for more black suburbanization (Hermalin and Farley, 1973; Sternlieb and Lake, 1975).

The aggregate Current Population Survey data that document the recent upsurge in black suburbanization have not provided us with information on the demographic and socioeconomic characteristics of the black suburban migration. Nor have the data sources indicated whether the blacks are moving into suburbs in the highly segregated patterns of the past, or whether there is reduced racial discrimination and a greater dispersal. During the 1950s and 1960s, black suburbanization entailed the expansion of heavily black ghettos in older industrial suburbs and the establishment and expansion of selected black residential enclaves (Connolly, 1973; Taeuber and Taeuber, 1976). Whether there is a new facet to the post-1970 trend cannot be determined yet. A substantially increased black middle class movement to the suburbs, even if in a racially concentrated rather than dispersed pattern, has potentially great import for the central cities. The racial trend in suburbanization must be watched very closely and available data should be examined in more detail.

The metropolitan residential deconcentration has spurred, and been spurred by, an extensive deconcentration of workplaces. Historically the centralization of employment activities in the central core of metropolitan areas was influenced by the central confluence of the rail, highway, and water transportation networks. The high costs of moving goods and people made central accessibility valuable. Only the urban core initially supported the urban infrastructure, permitting specialization and an efficient division of labor. During the last half century one after another of the constraints on peripheral location has diminished, and "negative externalities" associated with congested, highly taxed central locations have increased.

The decentralization trend was led in the 1940s and 1950s by industries that were expanding or newly developing and by retail trade in convenience goods. During the mid-1960s many central cities experienced a new boom in office construction, and a number of observers thought that headquarter and main office functions, financial and marketing activities, and many professional and specialized services would continue to require central location. Because such industries are the expanding portion of the postindustrial service economy, these observers forecast a new vitality for the central business district. Evidence culled from 1970 census data and the 1973 County Business Patterns indicates that the long-run trends may not follow such a neat division of function favoring the central city and that the optimism engendered in the mid-1960s may have arisen from particular short-run cycles (Struyk and James, 1975; Wilson, 1976, 1977).

Wilson utilized census public use sample tapes to obtain an array of information on employment location for persons in 25 major industrial categories and in 9 major occupational categories. In 1960, a majority of the metropolitan employment in 23 of the 25 industries (all but agriculture and mining) was located in central cities, and for 8 of the 25 the central city share of employment exceeded 70 percent. By 1970, 5 other industries had a suburban majority, and for only 1 did the central city share exceed 70 percent. Most significant, for every industry (except agriculture and mining) the central city share of metropolitan employment declined. Considering absolute numbers of employees by location, for only 10 industry groups did central city employment increase, while suburban employment increased for 21 industries. Specifically, suburban employment growth was greater than central city employment growth in the 1960s in finance, business services, professional services, and public administration. Occupational statistics also document that the suburban employment shift has been a broad process. The central city share of employment declined from 5 to 11 percentage points for each major occupation. The 1970 central city share of employment ranged only narrowly, from 51 percent for private household workers to 61 percent for sales and clerical workers.

If the process continues of increasing suburban representation of workplaces in nearly every industry and for workers of all types, further major redistribution may be inevitable. The need for easy access to other business firms and auxiliary services has been cited as probably the single most important factor conducive to central location of management and control functions and associated activities. The availability of such access in suburban locations fuels the relocation of more such activity, and the central city, locus of so many disadvantages from the perspective of top executives, loses another of its formerly unique advantages. The momentum of suburban growth may yet be increasing. At what point in the future to project a slowing of this momentum and at what pace remains a provocative and controversial question. Surely the process will not continue until all of the physical structures of the central city have been abandoned, all the people relocated, and the central city converted into an empty core. Any long-sustained process of redistribution eventually alters the condition that gave rise to it, and new political, social, economic, and technological forces come into play.

Commuting and the Job/Residence Mismatch. The continual redistribution of employment and residential locations within metropolitan areas perpetuates a complex pattern of commuting. Industrial location decisions are affected by the residential locations of the current or prospective work force, and household location decisions are affected by current and prospective job locations for the members of the household. The question as to how well these location and relocation decisions work has provoked lively scholarly debate among urban economists and sociologists and has affected various public policies, particularly some of the efforts undertaken in the 1960s war on poverty. The central issue for manpower debate and policy has been whether the decentralization of employment opportunities has had adverse effects on the economic well-being of central city workers, particularly the minority poor whose residential choice has been so tightly constrained. Specifically, to what extent have the high unemployment, low wages relative to skills, and high journey-to-work costs of central city black residents been aggravated by the movement of jobs to the suburbs?

Lack of a conclusive answer is to be expected given the complexity of the causal system that needs investigation, the severely limited quantity of data with appropriate information on residence and workplace location, and the paucity of trend data on these together with pertinent individual characteristics. For a brief review of trends from 1960 to 1970, I draw on innovative tabulations of census public use samples prepared by Franklin Wilson (1976, 1977).

By 1960, fewer than half of white metropolitan workers lived and worked in central cities (Table 4). During the 1960s this proportion declined another 10 percentage points. Much of the net shift was to the category, live and work in suburbs. Commuting from suburban residence to city job increased only slightly in relative proportion, and commuting from city to suburb remained infrequent among whites. Among black metropolitan workers, living and working in central cities was the dominant pattern in both 1960 and 1970, and the net shift to other categories was less for blacks than for whites. The largest relative gain for blacks was not, as for whites, in the category, live and work in suburbs, but rather in the category, live in central city

Table 4. RESIDENCE AND WORKPLACE DISTRIBUTION FOR BLACK AND WHITE METROPOLITAN WORKERS, 1960 AND CHANGE 1960-1970

Residence and Workplace	Percent of Metropolitan Workers			
	Blacks		Whites	
	1960	Change 1960-1970	1960	Change 1960-1970
Live and Work, Central City	75.1	-7.6	45.7	-10.2
Live and Work, Suburbs	12.7	+0.4	31.0	+ 6.8
Live Central City, Work Suburbs	7.3	+5.5	5.0	+ 1.8
Live Suburbs, Work Central City	4.9	+1.7	18.3	+ 1.6

SOURCE: Tabulations for selected metropolitan areas prepared by Franklin D. Wilson from census public use sample tapes; see Wilson, forthcoming.

and work in suburbs. During the 1960s blacks were distinctly more successful at acquiring suburban jobs than at acquiring suburban housing.

The data presented thus far on housing decentralization, job decentralization, and city/suburb commuting are all consistent with the existence of a large job/residence mismatch for blacks. The implications of this mismatch for black labor force experience are not so clear, whether the concern is with policy implications or with implications for the projection of future patterns and problems. Some policy advocates call for efforts to retain certain kinds of employment in central cities. Such policies may or may not have slowed the job decentralization process, but they obviously have not halted it. It is noteworthy that an expansion of the tabulation in Table 4 to include major occupation groups reveals little additional variance; the job/residence mismatch and the associated commuting and residential patterns for blacks and for whites are rather similar at all occupational levels.

Another policy approach is to spur city-to-suburb commuting by blacks. The Manpower Report of the President (1971:104) summarized experiments along these lines:

> As might be expected, it was found that the demand for transportation from slum areas to outlying employment centers depends on the job opportunities available to ghetto workers. Improved transit will reduce unemployment only when there are job openings for the potential users of the services at wages high enough to cover commuting expenses. Transportation is part of a larger problem and needs to be handled as such.

In the last few years increasing lip service has been given to still another policy to reduce the mismatch--the fostering of black residential movement to the suburbs. Although a strong legal framework exists for combating racial discrimination in housing, and federal and local governments have many policy tools at their command, relatively little has yet been done.

The forecaster's problem is that black residential suburbanization and black city-to-suburb commuting have increased, but these trends and the reasons for them have not yet been subject to analysis. It seems likely that the continuation of these trends, and the pace at which they occur, could be strongly affected by various policies that are receiving much talk but whose adoption and vigorous implementation cannot be predicted.

If new and rapidly expanding firms are more likely than others both to locate in the suburbs and to pay their employees more, then the jobs available in the suburbs would tend to be superior to those available in the central cities. Through analysis of 1970 census data, Wilson (1977) does find a higher wage rate for suburban workers, after taking into account a variety of individual characteristics affecting wages (for example, education, race, occupation, and industry). Is this higher suburban wage characteristic of both white and black workers? Is it different for suburban residents than for city-suburban commuters? Can black workers who change their workplace location from central city to suburb be expected to derive wage benefits? A series of more detailed analyses by Wilson provides some intriguing tentative answers for 1969-70.

A set of wage-rate comparisons for black workers is presented in Table 5. Wage rates for blacks who live and/or work in the suburbs are higher than for blacks who live and work in the central cities (first three rows). For each of these comparisons, there is an 11 to 13 percent wage differential after controlling for selected wage-related individual attributes. (Although occupation and industry are among the control variables, no computation utilizing census categories can rule out detailed differences in job level and responsibilities as a principal determinant of the wage differentials.) No significant differential in wages is evident among blacks who commute to the city, blacks who commute to the suburbs, and blacks who live and work in the suburbs.

Table 5. HOURLY WAGES OF BLACK HEADS OF PRIMARY FAMILIES, BY RESIDENCE AND WORKPLACE, 1969

Residence and Workplace		Hourly Wages of Comparison Group	Hourly Wages of Standard Group	Component Differences (in percentage)A/	
Standard Group	Comparison Group			Mean Attributes	Wage Rate
Live and Work, Central City	Live Central City, Work Suburbs	$4.44	$3.75	2.15	11.85
Same	Live Suburbs, Work Central City	4.74	3.75	11.37	12.62
Same	Live and Work, Suburbs	4.48	3.75	6.42	11.08
Live Central City, Work Suburbs	Live and Work, Suburbs	4.48	4.44	2.36	1.44
Live and Work, Suburbs	Live Suburbs, Work Central City	4.74	4.48	2.15	2.80

A/ The interaction component is omitted.

SOURCE: Calculated by Franklin D. Wilson from tabulations for selected metropolitan areas prepared from census public use sample tapes; see Wilson, forthcoming.

Among whites the corresponding table reveals generally small wage differentials, and those that appear are a result primarily of differences in personal attributes rather than in wage rates. Thus the principal feature of this analysis of wage differentials is the higher wage rates earned by blacks who work in the suburbs (this leaves as somewhat anomalous the higher wages earned by black suburb-to-city commuters). One may speculate that at this late stage in the evolution of white suburbanization there are unlikely to be any long-sustained wage differentials, but that in the early stages of black suburbanization there is something special about those suburban employers that hire blacks. Might they be in high growth industries, and more likely to adopt not only new product lines, new technologies, and new organizational forms, but also personnel innovations? Do such characteristics of these industries engender somewhat less job discrimination? Or is it rather that industries engaged in significant new hiring in recent years have been compelled by new governmental policy to hire more blacks at lesser wage differentials?

If either of these speculations is true, blacks who obtain suburban jobs may find job discrimination to be somewhat less and opportunities for advancement somewhat greater. A comparison of white and black wages (Table 6) shows clearly that racial wage differentials persist for all four residence/workplace categories. The differential is greater (19 percent) among those who live and work in central cities. Again it is possible to read this evidence as indicating that patterns of labor market discrimination against blacks vary among firms and industries, and that the economic environment in which new and growing industries must operate exerts more pressure on these industries than on older stable or declining industries to conform to changing social forces fostering equal opportunity.

Commuters between central cities and suburbs probably pay average commuting costs higher than those who live and work within central

Table 6. HOURLY WAGES OF BLACKS AND WHITE HEADS OF PRIMARY FAMILIES, BY RESIDENCE AND WORKPLACE, 1969

Residence and Workplace	Hourly Wages of Whites	Hourly Wages of Blacks	Component Differences (in percentage)A/	
			Mean Attributes	Wage Rate
Live and Work, Central City	$5.35	$3.75	22	19
Live and Work, Suburbs	5.96	4.48	22	13
Live Central City, Work Suburbs	5.57	4.44	15	11
Live Suburbs, Work Central City	6.10	4.74	22	9

A/ The interaction component is omitted.

SOURCE: Calculated by Franklin D. Wilson from tabulations for selected metropolitan areas prepared from census public use sample tapes; see Wilson, forthcoming.

cities or within suburbs. Yet commuters did not, according to this 1969-70 evidence, receive higher wages. Wage rates for family heads who work full time are ordinarily high enough so that commuting costs are a small portion of total remuneration. For secondary workers in a family, particularly women and teenagers seeking part-time work, the time and money costs of job search and commuting pose a far greater hurdle to employment. It would be appropriate to devote greater effort in analysis of the job/residence mismatch hypothesis to these groups in the minority population. Black women and teenagers have high unemployment rates when the economy is booming and very high unemployment rates at all other times. Discouragement from looking for work is also very prevalent among these groups. If residential suburbanization or other trends were to increase employment opportunities for black women and teenagers, there could be very sharp rises in rates of labor force participation.

The Amazing Nonmetropolitan Turnaround. The projector must ascertain which past trends will continue with undiminished vigor, which need to be extrapolated with a dampening factor, and, most difficult of all, which past trends will be reversed. The bottom line of Table 2 reveals an example of a trend that has reversed, most unexpectedly, with enormous consequences for the future distribution of population and economic activity. Nonmetropolitan population had a higher average annual percentage change in 1970-74 (1.2 percent) than did metropolitan population change (0.9 percent). In 1960-70 the metropolitan population grew faster. Indeed, throughout our national history, except for limited periods of homesteading and new settlement of agricultural territory, increasing concentration of people in cities and metropolitan areas has been the dominant distributional trend.

Stone walls meandering through the woods testify that much of rural New England was once more densely settled than it is now. Most of the nation's farmland was initially occupied at much higher densities than could be sustained for long, particularly in the face of 20th century agricultural mechanization. The steady rise in size of farms, drop in number of farms, and decrease in farm population produced a persistent demographic quirk. As the total U.S. population grew decade by decade, more and more of the nation's counties lost population. Between 1950 and 1960, half of all counties lost population, and four-fifths had a net outmigration (Beale and Fuguitt, 1976). The mild dampening of this trend that was apparent in the 1960-70 data turns out in retrospect to have been the harbinger of rapid change since 1970. From 1960 to 1970, 44 percent of counties lost population, and 69 percent experienced net outmigration. From 1970 to 1974, fewer than one-fourth (23 percent) of counties lost population, and only 37 percent did not have net immigration.

The new nonmetropolitan population surge has two components. One is the sprawl of people and economic activities outward from metropolitan nodes. Those nonmetropolitan counties that are adjacent to counties formally part of Standard Metropolitan Statistical Areas had an annual rate of net migration of -1.23 percent in the 1950s, -.54 in the 1960s, and +.67 in the early 1970s. The second component is an equally large migration change for nonadjacent counties: -.53 in the 1950s, -.85 in the 1960s, and +.52 in the early 1970s (Beale and Fuguitt, 1976:Table 2).

Assessment of the new trend is based on annual county population estimates of total population that do not provide evidence on age, sex, race, or social and economic attributes, and on Current Population Survey data that do not provide sufficient evidence on geographic location. Thus only limited analysis has yet been possible. Beale and Fuguitt (1976; see also Beale, 1975) have performed some analyses utilizing selected county attributes: presence of a state college in the county, presence of a military base, attraction of the county to retirees, percentage of black persons, agricultural employment, and manufacturing employment. These factors constitute a set of obvious first causes that might permit us to explain the new trend as simply conforming to previous patterns. None of them suffices. Any prognostication of future distributional trends should take cognizance of the scale and pervasiveness of the new trend (Beale and Fuguitt, 1976):

> The United States has entered a period of greatly reduced growth for its major metropolitan areas and of largely unpredicted demographic revival for most of its rural and small town areas. How long this will last is unknown, but the effect is already significant and none of us has ever seen its like before. The net movement into the nonmetropolitan areas is now as rapid as the movement out of them was in the 1960s.... The new pattern is not merely a heightened metropolitan sprawl nor a feature of a few areas or a limited number of circumstances.
>
> ...Will the shift in the direction of net migration result merely in an urbanization of more sections of the country or a greater contextual ruralization of a larger segment of the population? Perhaps both will occur, though...the most rapid nonmetropolitan growth in the 1970s was in entirely rural counties. Under conditions of general affluence, low total population increase, easy access to all areas, modernizations of rural life, and large metropolitan concentrations in which the advantages of urban life are seen to be diminished, a downward shift to smaller communities may be both feasible and desirable.

The projection of the national manpower future has attracted the greatest effort and attention, yet the shifting geographic locus of population and employment is a more volatile process than change in the national aggregate. The continued deconcentration of metropolitan residences and workplaces and the new nonmetropolitan growth trend need to be brought within the domain of ongoing manpower projection efforts. Evaluation of past policies (area redevelopment, growth centers, new towns) as well as realization of the new interest in national land use, growth, and distributional policies requires increased investment in the monitoring of trends in economic and demographic redistribution, in the economic and sociological analysis of those trends, and in the effort to construct useful projections of what the future may confront us with.

G. The Art and Strategy of Population and Labor Force Projections

Preparing a projection is difficult and tedious work. When I began this examination of current projections I had hopes of preparing some alternative projections for blacks and for Mexican-Americans. Simple demographic projection models, after all, are readily available and operable at most computer centers. I overlooked the enormous amount of detailed groundwork that needs to be done before one can plug data into the model and grind out results. The methodological descriptions in the reports of the 1975 population projections and the 1976 labor force projections are an object lesson. One must be consistent in the treatment of population residents abroad, persons in the armed forces in the United States or abroad, institutional population, residential allocation of college students, correction of base data series for known net undercount, minimum age for tallying labor force involvement, and so forth. The Current Population Surveys, censuses, and vital statistics must be brought into a common framework of definitions and adjustment, and trend series in each must be adjusted for temporally changing procedures. The projectors at Census and Labor have performed well a prodigious amount of work.

The person who would make an unofficial projection needs easy access to these specially prepared data series. Informal cooperation often suffices to make such background available to others, but personnel turnover or pressures of other work sometimes make informal channels ineffective. Each major projection agency should allocate resources to formal documentation of procedures and facilitation of access to all of the meaningful background work.

The purposes served by projections are manifold, but the potential value of projections, as identified by a number of authors, is not very fully realized. Perhaps the authors overestimate the ability of managers and planners to manage and plan, or perhaps the managers and planners find something lacking in the projections that are made available. Conceptual models of rational planning certainly call for intensive use of alternative projections as a basic tool. Is it the case that the projection function is too isolated from the management function, or that too few resources are devoted to projection to permit it to be a flexible tool? I am a complete outsider with respect to the organization charts, formal and informal, of the Department of Labor, and I simply raise these questions without any ability to answer them. It appears, however, that labor force projection is a sporadic effort, that every few years a set of revised projections is prepared. Projection is a highly complex task, requiring not only technical expertise but a professional familiarity with a broad array of social science research and data sources and the capacity to exercise judgment in the choice and matching of techniques and assumptions. Ideally the projector should also be engaged in interpreting the alternative projections to clientele in the Department of Labor, and in preparing and assessing further alternatives to meet various specific needs as they are expressed. These tasks cannot be performed adequately on sporadic part-time assignment.

In the ideal circumstances envisioned by those authors who describe the uses of projections and by those who formulate models of rational management, projection is recognized as a process rather than a sporadic event. It is taken for granted that the future is not predictable, that as it unfolds our assumptions about its course are subject to change, that indeed the very process of projection is designed to facilitate interference with the course of events so that the future may be altered. If projections are intermittently prepared by personnel who usually have other responsibilities, without close and continual interaction of these personnel with the presumed consumers of the projections, then projections cannot live up to their promise.

Even a rather narrow management utilization of projections cannot be well done without a continuing assignment of professional staff to projection duty. Assume a demand for the best 10- or 20-year projection, and perhaps for "reasonable" upper and lower bounds. Someone has to choose what is best and what is reasonable. To make such choices requires a bit of art and a lot of serious social science scholarship concerning demographic, economic, and manpower trends. The manager or other consumer may not want a large set of alternate projections, but the projector should nonetheless have time and resources to try out alternatives, to make sensitivity tests, and to prepare to defend judgments of "best" and "reasonable." Certain assumptions will prove to be less sure or reasonable than others, and it should be the duty of the projector to identify these, monitor trends and research, perhaps even conduct research, and be prepared to modify the standard projection or its bounds.

If the projection enterprise is taken at all seriously, the professionals engaged in doing the work will necessarily be using a method of multiple alternatives. If this is the case, there is greater potential for a more serious management and policy use of multiple alternatives. A projection office should have the capacity to monitor social indicators, to conduct sensitivity tests, to undertake some original research and keep up with other research, to evaluate past projections, to take time to recognize interrelations among various component trends (for example, mortality and retirement assumptions or education, age at marriage, and female labor force participation), to advise consumers both inside and outside labor of their product, and to participate fully in scholarly debate about projections, assumptions, and trends.

In the sciences the ability to predict the future is one of the most persuasive tests of the adequacy of knowledge. In the social sciences such a test often cannot be applied, but where it can be, it is a powerful research tool. Serious projections, grounded in well-formulated extrapolations and carefully specified assumptions, are a method of basic as well as applied research. If this utility of projections is to be obtained, it is all the more necessary for projection to be a continuous scholarly enterprise. I have commented several times in previous pages about neat shortcuts taken by projectors that yield seemingly plausible and internally consistent projections but that leave the research scholar out in the cold. I believe such shortcuts are a false economy, tending to keep projection in the magical realm of forecasting and hampering both applied and basic utilization of projections.

A governmental office that produces a best projection or any small set of projections for publication and official dissemination is likely to be constrained politically in its assumptions about the general state of the economy. I doubt if there is any way to remove such constraints fully, but an office that is concerned with producing a broad array of projections should have more flexibility in this regard than would an office assigned to publish only a best projection. More generally, I have suggested the need for a kind of preparedness planning function, for consideration of unlikely alternatives such as a swine flu epidemic with mortality patterns similar to those of 1918-19, and of less unlikely but unpalatable alternatives such as an illegal net immigration of approximately the same magnitude as natural increase. Only a relatively apolitical technical office charged with preparing multiple alternative projections could legitimate such activity. And only a well-staffed office with reasonable resources could carry out such projections with the combination of technical skill and imagination necessary to make them useful.

My perspectives on specific assumptions made in the official population and labor force projections derive from a background in demography and sociology. I have not considered many of the issues in labor force projections that concern the economist. I have looked at certain demographic influences on manpower supply, without considering complexities such as the effects of business cycles on discouraged workers or the effect of female employment rates on male employment rates. A projection office in the Department of Labor cannot be so narrow. But the breadth of demands placed on the projection effort seems to call for more skills and scholarship than one person can command. The task of projecting compels attention to intricacies of social systems that we are just beginning to comprehend. The lone scholar is likely to be overwhelmed and compelled to take shortcuts that detract from the enterprise.

The projection strategy of straightforward extrapolation from past trends has pretty well died. Every modern projector takes various precautions to avoid the old errors of extrapolation beyond any bounds of reason. But if old trends must be interpreted rather than simply plotted and future trends fitted into a concept of the way the past flows into the future, there is an element of art required. In a review of the Beale and Fuguitt (1976) analysis of the new nonmetropolitan population trend, Hawley (1976) commented:

> This shift in trend...is one of the many reminders...of the historical particularity of much of our knowledge. Most of what we have learned over the years about population movements in the United States describes a society in transition from agrarian to industrial and perhaps to post-industrial phases. Consequently, one component after another in that body of knowledge has tended to become obsolete before it has been perfected.

Beale and Fuguitt (1976) put the case equally strongly: "The rules of reference for our thinking about the residential distribution of the population are changed just as surely as the events of the late 1940s shocked a reluctant demographic fraternity into a reappraisal of the possibilities in fertility trends."

Projecting old trends to continue or accelerate or dampen, is a task requiring great skill and technique. Discerning with foresight rather than hindsight the new trends as they are emerging out of the old is a task requiring great skill, technique, and vision. Therein lies the art and excitement of projections.

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